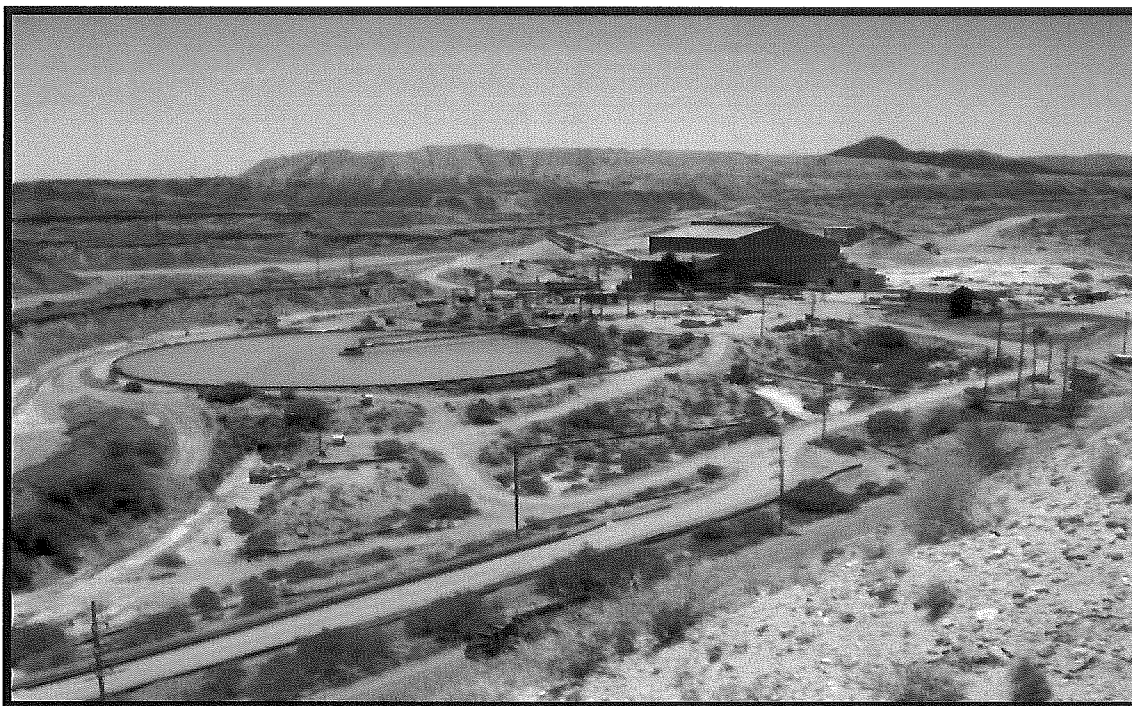


ASARCO LLC – Mission Complex South Mill Expansion



Significant Permit Revision Application Permit No. 2026

July 27, 2011

**ASARCO LLC—Mission Complex
South Mill Expansion**

**Significant Permit Revision Application
Permit No. 2026**

Submitted to:
Pima County Department of Environmental Quality
Air Quality Division

July 27, 2011

**ASARCO LLC—Mission Complex
South Mill Expansion Project**

Project Overview

Mission proposes to increase the design capacity of the existing South Mill from a nominal 19,000 dry tons per day (tpd) of new mined ore to 31,000 tpd of new mined ore (annual average). The South Mill would have a short term capacity of up to 45,000 tpd new mined ore. The increase in capacity would be achieved as follows:

The addition of:

- Two new 16½' x 19' ball mills (3,000 HP each) within a new extension of the South Mill Building. The feed to the new ball mills will be the vibrating screen undersize from the north SAG mill.
- Downstream of the ball mills, the existing rougher flotation banks consist of three 1,500 ft³ Wemco cells and a mixture of 300 ft³ and 400 ft³ cells. The proposed modification will remove all of the 300 ft³ and 400 ft³ cells and replace them with 1500 ft³ Wemco cells. The result of the modification would be three banks of eight 1500 ft³ cell arranged 3-3-2 in the existing South Mill building.
- After the rougher flotation circuit modifications have been completed, there will be sufficient room on the north side of the flotation deck to install a second scavenger flotation row consisting of 300 ft³ cells in the existing South Mill building.
- A fourth column flotation cell will be installed on the existing pad adjacent to the current column cells. At the design capacity 31,000 tpd, three column cells will be in operation and the fourth would be a spare.
- A new concentrate storage/loading building will be constructed to provide better containment of concentrate.
- Tailing from the flotation circuit is thickened. Thickener underflow will flow by gravity to the tailing ponds and thickener overflow is recycled to the mill water system. A new 120' high rate thickener will be installed for the increased production rate.

The existing South Crusher facility (primary crusher, conveyors and radial stacker) is not being modified, although throughput should increase to take advantage of the increased capacity in the South Mill.

The existing South Mill reclaim and omniconic circuits are not being modified, although throughput will increase due to the increased capacity in the South Mill.

Some control improvements at the South Crusher, South Mill and ancillary operations are proposed. The proposed improvements include:

- Upgrading the water sprays on the South Crusher ore dump to reduce process fugitive emissions.
- Installing a new baghouse rated at 21,000 SCF/min and 0.003 gr/scf to replace the existing wet scrubber (10-108) at the South Crusher primary crusher (10-101);
- Improving capture on the 10-114 wet scrubber from 0.90 to 0.95 and establishing a 0.01 gr/scf emission limit;
- Installing a new 25,000 SCF/min Farr dust collector to replace the existing wet scrubber (30-150) that controls the stockpile vibratory feeders and SAG mill dumps, establish a 0.003 gr/scf limit, and adding additional drops to control the following points:
 - Omnicone return (conveyor 20-265) to SAG reclaim belt (conveyor 20-244) (one drop)
 - SAG return belts (conveyors 20-244/245) to transfer belts (conveyors 20-266/268) (two drops)
 - Transfer belts (conveyors 20-266/268) to SAG feed belts (conveyors 30-134/136) (two drops)
- Moving existing wet scrubber (30-150) to control the intermediate ore stockpile vibratory feeders 20-252, 20-253 and 20-254 to conveyor 20-251 and conveyor transfer point 20-251 to 20-255 and establishing an emission limit of 0.01 gr/scf.
- Adding water sprays to the intermediate ore stacker (20-250), currently uncontrolled.
- Establishing a 0.01 gr/scf limit on the omnicone crusher scrubber (20-270).
- Installation of a new baghouse rated at 500 SCF/min and 0.003 gr/scf to control the currently uncontrolled lime circuit, including the drop from the lime silo (60-500) through the syntron feeder (60-501) to the lime conveyor (60-600) and the feed to the lime ball mill (60-505).
- Adding a new, mostly enclosed, concentrate storage and loading building.

Past testing has shown that Mission's existing wet scrubbers can consistently achieve a 0.01 gr/scf level of control. The proposed level of 0.003 gr/scf for the Farr dust collectors is well within the acceptable range for modern dust collectors based upon manufacturer's guarantees and standard engineering practice.

Asarco proposes to adopt rolling 12 month throughput limits for the South Crusher and South Mill of 12,500,000 new mined ore tons/year, measured at the South Crusher ore dump, to provide an added assurance of compliance. Short term capacities would not be limited to allow time for maintenance and repair of process and control equipment.

Regulatory Applicability Analysis

The proposed addition of process equipment, additional control equipment, and recognition of more definitive limits for existing control equipment must be processed as a "significant permit revision" pursuant to P.C.C. 17.12.255(A).

The proposed project is not subject to PSD because the new equipment will not result in emissions. New control equipment and throughput limitations on the South Crusher and South Mill (the only part of the facility affected) reduce potential emissions so that there is an overall emissions decrease from the project. Based upon guidance provided by PDEQ during the May 13, 2011 meeting, all stack and process fugitive emissions were considered in this analysis. A more detailed discussion of the PSD applicability analysis is set forth in Attachment G.

The proposed new ball mills and flotation cells are not subject to NSPS because they are wet grinding equipment not covered by the applicability provisions of P.C.C. 17.16.490.A.43, 40 C.F.R. § 60.380(a). The new tailings equipment is not subject to NSPS because it does not handle “metallic minerals” or “metallic mineral concentrate” as defined in P.C.C. 17.16.490.A.43, 40 C.F.R. § 60.381. The new concentrate storage/loading building is subject to NSPS as both an “enclosed storage area” and as a “truck loading station” pursuant to P.C.C. 17.16.490.A.43, 40 C.F.R. § 60.380(a) and is subject to a 10% opacity limit pursuant to 17.16.490.A.43, 40 C.F.R. § 60.382(b). The scrubbers and/or dust collectors located on the SAG Mill Reclaim Circuit and Omnicone Crusher Circuit would be subject to NSPS because the underlying process equipment is subject to NSPS. The proposed emission limits are more stringent than NSPS, however.

No National Emission Standard for Hazardous Air Pollutants (NESHAPs) are directly applicable to the proposed facility change.

All of the proposed equipment will be subject to the requirements of P.C.C. 17.16.130, “Applicability,” and 17.16.360, “Standards of Performance for Nonferrous Metals Industry Sources.”

Asarco will otherwise comply with all existing requirements of its Air Quality Permit No. 2026 issued to the Mission Complex.

Testing

Asarco proposes to test the new dust collector at the primary crusher and the wet scrubber 10-114 within 180 days of installation of the new or modified air pollution control equipment, which will give some time for fine tuning operation of the new system. Asarco proposes to test the new and/or relocated equipment on the SAG Reclaim Circuit and Omnicone Circuits within 60 days of achieving maximum production or 180 days of startup, whichever comes first, where “startup” is defined as the installation of the new control equipment and operation of the new grinding

equipment in the South Mill, which will allow the existing process equipment (and its control equipment) to operate at the new, higher utilization level.

Monitoring

All Units. Asarco proposes to continue to monitor all units pursuant to Air Quality Permit No. 2026. In addition, Asarco proposes the following new or additional monitoring at units that are either new or have received new air pollution control requirements as part of this proposed facility change:

PFOPS-0, Ore Unloading. Asarco proposes to undertake daily systems checks to ensure that the required number of spray nozzles is operating, weekly maintenance observation of the spray system (water pressure, nozzle orientation), weekly Method 22 observations, and continue Method 9 observation on the existing permit schedule. Asarco will monitor process weights daily for the South Crusher circuit.

SSOPS-1, Primary Crusher Dust Collector. This is a CAM unit because it utilizes a control device (a dust collector) to ensure compliance with a particulate emission limit and has pre-control device potential to emit of greater than 100 tons/year. Asarco proposes to undertake daily Method 22s of the dust collector stack and daily differential pressure readings. The results of these readings shall be recorded. If visible emissions are observed, either a Method 9 observation showing no exceedance of the 20% opacity limit must occur within the next six daylight hours or a deviation must be recorded. An inspection and/or corrective action must be completed within 24 hours and the results recorded. If a daily differential pressure reading is outside the recommended range, an inspection and/or corrective action must be completed within 24 hours and the results recorded. The differential pressure range shall be set at the manufacturer's recommended range unless Asarco conducts testing and demonstrates that a wider differential pressure range results in acceptable opacity and particulate emissions. Asarco will monitor process throughputs daily through the South Crusher circuit.

SSOPS-2, Transfer Wet Scrubber. This is a CAM unit because it utilizes a control device (a wet scrubber) to ensure compliance with a particulate emission limit and has pre-control device potential to emit greater than 100 tons/year. Asarco proposes to undertake daily Method 22s of the dust collector stack and daily differential pressure and water flow rate readings. The results of these readings shall be recorded. If visible emissions other than water vapor are observed, either a Method 9 observation showing no exceedance of the 20% opacity limit must occur within the next six daylight hours or a deviation must be recorded. An inspection and/or corrective action must be completed within 24 hours and the results recorded. If a daily

differential pressure or water flow reading is outside the recommended range, an inspection and/or corrective action must be completed within 24 hours and the results recorded. The differential pressure and water flow ranges shall be set at the manufacturer's recommended range unless Asarco conducts testing and demonstrates that a wider differential pressure or water flow range results in acceptable opacity and particulate emissions. Asarco will monitor process throughputs daily through the South Crusher circuit.

SSOPS-3, Coarse Ore Vibratory Feeds, SAG Mill Feed and SAG Reclaim Circuit. This is a CAM unit because it utilizes a control device (a dust collector) to ensure compliance with a particulate emission limit and has pre-control device potential to emit greater than 100 tons/year. Asarco proposes to undertake daily Method 22s of the dust collector stack and daily differential pressure readings. The results of these readings shall be recorded. If visible emissions are observed, either a Method 9 observation showing no exceedance of the 7% opacity limit must occur within the next six daylight hours or a deviation must be recorded. An inspection and/or corrective action must be completed within 24 hours and the results recorded. If a daily differential pressure reading is outside the recommended range, an inspection and/or corrective action must be completed within 24 hours and the results recorded. The differential pressure range shall be set at the manufacturer's recommended range unless Asarco conducts testing and demonstrates that a wider differential pressure range results in acceptable opacity and particulate emissions. Asarco will monitor process throughputs daily through the South Mill circuit.

SSOPS-4A, Intermediate Stockpile Vibratory Feeders and Transfer 20-251/255 and SSOPS-4, Omnicone Crushers. These are CAM units because they utilize a control device (a wet scrubber) to ensure compliance with a particulate emission limit and has pre-control device potential to emit greater than 100 tons/year. Asarco proposes to undertake daily Method 22s of the dust collector stack and daily differential pressure and water flow rate readings. The results of these readings shall be recorded. If visible emissions other than water vapor are observed, either a Method 9 observation showing no exceedance of the 20% opacity limit must occur within the next six daylight hours or a deviation must be recorded. An inspection and/or corrective action must be completed within 24 hours and the results recorded. If a daily differential pressure or water flow reading is outside the recommended range, an inspection and/or corrective action must be completed within 24 hours and the results recorded. The differential pressure and water flow ranges shall be set at the manufacturer's recommended range unless Asarco conducts testing and demonstrates that a wider differential pressure or water flow range results in acceptable opacity and particulate emissions. Asarco will monitor process throughputs daily through the South Mill Omnicone Crusher circuit.

SSOPS-6, Lime Circuit. This is not a CAM unit because the pre-control device potential to emit does not exceed major source thresholds. Asarco proposes to monitor this unit in accordance with the existing Permit 2026 provisions.

Recordkeeping and Reporting

Pursuant to P.C.C. 17.16.490.A.43, 40 C.F.R. § 60.380 *et seq.*, Asarco will maintain records of the performance tests on the NSPS dust collectors and wet scrubbers, records of the differential pressure and flow rate during the performance test, and records of weekly observations of differential pressure and flow rates.

Pursuant to P.C.C. 17.16.360, Asarco will maintain daily throughput records of materials process through the South Crusher circuit, the South Mill and the South Mill Omnicone Circuit. Overall throughput of new mined ore will be monitored at the ore dump.

Pursuant to CAM, Asarco will maintain records of the daily Method 22 observations and weekly differential pressure observations, weekly inspection records, Method 9 observations (when required), and inspection and corrective action records.

Supporting Materials

The following materials are submitted in support of this application.

Attachment A	Standard Permit Application Forms
Attachment B	Standard Application Filing Questions
Attachment C	Emission calculations (an Excel spreadsheet on disk) and calculation notes
Attachment D	CAM plans
Attachment E	Revised site plan and process flow diagrams
Attachment F	Vendor data supporting emission calculations
Attachment G	PSD netting analysis
Attachment H	Stack test data

The signed certification by the Mission Complex Responsible Official is found in Attachment A. It is our understanding that PDEQ will invoice Mission Complex for fees.

Contact Information

Please contact the following individuals if there are questions on this application:

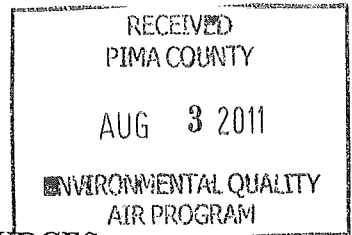
Jamie Ekholm
ASARCO LLC—Mission Complex
520-393-4671
jekholm@asarco.com

Eric Hiser
Jorden Bischoff & Hiser, PLC
480-505-3927
ehiser@jordenbischoff.com

ATTACHMENT A

Standard Permit Application Forms

PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Program
33 N. Stone Avenue • Suite 700 • Tucson, AZ 85701 • Phone: (520) 243-7400



STANDARD PERMIT APPLICATION FORM FOR CLASS I SOURCES

(As required by A.R.S. § 49-480, and Title 17 of the Pima County Code)

1. Permit to be issued to (Arizona Corporate Commission Registered Name): ASARCO LLC
2. Mailing Address: 4201 W. Pima Mine Rd.
City: Sahuarita State: AZ ZIP: 85629
3. Plant Name (if different than item #1): ASARCO LLC - Mission Complex
4. Name (or names) of Owner or Operator: ASARCO LLC - Mission Complex
FAX #: 520-625-0802 Phone: 520-648-2500
Email: Not applicable
5. Name of Owner's Agent: Richard S. Rhoades, General Manager
FAX #: 520-625-9632 Phone: 520-648-4528
6. Plant/Site Manager/Contact Person: Jamie Ekholm, Environmental Engineer
FAX #: 520-648-0802 Phone: 520-393-4671
Email: jekholm@asarco.com
7. Proposed Equipment/Plant Location Address: 4201 W. Pima Mine Rd.
City: Sahuarita State: AZ ZIP: 85269
Indian Reservation (if applicable): No T/R/S, Lat/Long, Elev: 31 58' 38.79" N, 111 3' 36.82" W, elev 3302
8. General Nature of Business: Copper mining and concentrating
Standard Industrial Classification Code: 1021 State Permit Class: Class 1
9. Type of Organization: ☐ Corporation ☐ Individual Owner ☐ Partnership ☐ Government Entity ☒ Other LLC
10. Permit Application Basis (Check all that apply): ☐ New Source ☐ General Permit
☐ Renewal Revision: ☐ Administrative ☐ Minor ☒ Significant Existing Permit # 2026
Date of Commencement of Construction or Modification: as soon as possible
Is any of the equipment to be leased to another individual or entity? ☐ Yes ☒ No
11. Signature of Responsible Official of Organization: [Signature]
Official Title of Signer: General Manager, Mission Complex
12. Typed or Printed Name & E-mail of Signer: Richard S. Rhoades RRhoades@asarco.com
Date: 7/27/2011 Telephone Number: 520-648-4528

EQUIPMENT LIST

The following table should include all equipment utilized at the facility and be complete with all data requested. The date of manufacture must be included in order to determine if portions of the facility are subject to NSPS. Make additional copies of this form if necessary.

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Equipment ID Number	Date of Manufacture
(x15) Ball Mill	3000 HP	Metso	A/C 16.5' x 19'		30-955	
(x5) Ball Mill	3000 HP	Metso	A/C 16.5' x 19'		30-956	
Flotation Cells	@1500 ft3	Wemco	1500 ft3 1+1		40-970 - 40-984	
Scavenger Cells	@300 ft3	Wemco	300 ft3 1+1		40-985 - 40-989	
Column Cell	8' x	Fabricated by TaCaId,	Metso sparger system		40-378	
Thickener	120' DIA	Denver or Outokumpu	High Rate		70-612	
New Baghouse?						
Lime Control?						
Tank Cell	4500 ft3	Metso	Tank Cell		40-965A	
(2) Cyclone Fuel Pumps	7031 GPM	Warman	16x14 TUAH		30-951, 30-952	
(2) Float Feed Pumps	7288 GPM	Warman	350 SL 16x14		30-964, 30-963	
(1) Tank Cell Tails	7293 GPM	Warman	350 SL 16x14		40-965D	
(8) Hydro Cyclone	1296 GPM	Krebs	33" gMax		30-953, 30-954	
(2) Sump Pumps		Warman	100 RV		30-998, 30-999	
Bridge Crane?						
Liner Handler	2500 lbs	Mcfellan				

ASARCO LLC--Mission Complex, South Mill Expansion Equipment List

Type of Equipment	Max Rated Capacity	Make	Model	Serial #	Equip. ID Number	Date of Manufacture
Dry Dust Collector Cartridge Unit	21,000 ACFM	FARR	GS40-32	TBD	10-108	TBD
Wet Scrubber	4,899 CFM	DUCON	Size 42 Type UW-4	C-90-1045	10-114	1970
Dry Dust Collector Cartridge Unit	25,000 ACFM	FARR	GS40-32	TBD	30-150	TBD
Wet Scrubber	13,000 CFM	DUCON	Size 66 Type UW-4	C90-1045	20-270	1990
Wet Scrubber	14,800 CFM	DUCON	Size 72 Type UW-4	C70-356	20-256	1970
Dry Dust Collector Cartridge Unit	500 CFM	FARR	GS4	TBD	60-502	TBD

ASARCO LLC--Mission Complex, Emission Source Information

Emission Point		UTM Coordinates of Emission Point			Stack Sources				
Number	Name	Zone	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (ft)	HEIGHT ABOVE STRUC. (ft)	DIA (ft)	VEL (fps)	TEMP (F)
SSOPS-1	Dry Dust Collector Primary Crushing	12 N	233,127	108,569	20	N/A	3	50	TBD
SSOPS-2	Wet Scrubber Trans. To Stacker	12N	233,184	108,656	30	N/A	2	26	83
SSOPS-3	Dry Dust Collector Trans. To SAG Mills	12N	233,317	108,682	20	N/A	3	59	TBD
SSOPS-4	Wet Scrubber Secondary Crushing	12N	233,335	108,622	30	N/A	3.33	37	78
SSOPS-6	Dry Dust Collector Lime Handling	12N	233,385	108,600	45	8	0.7	22	TBD
SSOPS-4A	Wet Scrubber Intermediate	12N	233,400	108,592	34	N/A	3.5	21	84

Certification of Compliance with all Applicable Requirements

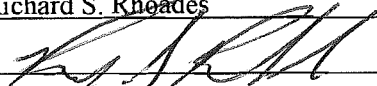
Permit Number (If existing source) 2026

This certification must be signed by a Responsible Official. Applications without a signed certification will be deemed incomplete.

The responsible official is defined as a person who is in charge of principal business functions or who performs policy or decision making functions for the business. This may also include an authorized representative for such persons. For a complete definition, see Pima County Air Quality Control, Title 17, Section 17.04.340(A)(186).

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Pima County Department of Environmental Quality (PDEQ) as public record. I also attest that I am in compliance with the applicable requirements and will continue to comply with such requirements and any future requirements that become effective during the life of my permit. I will present a certification of compliance to PDEQ no less than annually and more frequently if specified by PDEQ. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the requirements of Title 17 of the Pima County Code and any permit issued thereof.

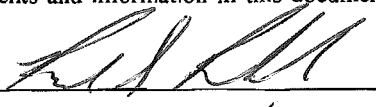
Name (Print/Type): Richard S. Rhoades Title: General Manager, Mission Complex

(Signature):  Date: 7/27/2011

Certification of Truth, Accuracy, and Completeness

17.12.160(H) - Certification of Truth, Accuracy, and Completeness. Any application form, report, or compliance certification submitted pursuant to this Chapter shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the documents are true, accurate, and complete.

By my signature I, (Name) Richard S. Rhoades, hereby certify that based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Signature of Responsible Official of Organization: 

Title: General Manager, Mission Complex Date: 7/27/2011

ATTACHMENT B

Standard Permit Application Filing Questions Responses

ATTACHMENT B
Standard Application Filing Questions Responses

1. Description of the process to be carried out by each unit.

Mission proposes to increase the design capacity of the existing South Mill from a nominal 19,000 dry tons per day (tpd) of new mined ore to 31,000 tpd of new mined ore (annual average). The South Mill would have a short term capacity of up to 45,000 tpd of new mined ore. The increase in capacity would be achieved as follows:

The addition of:

- Two new 16½' x 19' ball mills (3,000 HP each) within a new extension of the South Mill Building. The feed to the new ball mills will be the vibrating screen undersize from the north SAG mill.
- Downstream of the ball mills, the existing rougher flotation banks consist of three 1,500 ft³ Wemco cells and a mixture of 300 ft³ and 400 ft³ cells. This modification will remove all of the 300 ft³ and 400 ft³ cells and replace them with 1,500 ft³ Wemco cells. The result of the modification would be three banks of eight 1,500 ft³ cell arranged 3-3-2 in the existing South Mill building.
- After the rougher flotation circuit modifications have been completed, there should be sufficient room on the north side of the flotation deck to install a second scavenger flotation row consisting of 300 ft³ cells in the existing South Mill building.
- A fourth column flotation cell will be installed on the existing pad adjacent to the current column cells. At the design capacity 31,000 tpd, three column cells will be in operation and the fourth would be a spare.
- Tailing from the flotation circuit is thickened. Thickener underflow will flow by gravity to the tailing ponds and thickener overflow is recycled to the mill water system. A new 120' high rate thickener will be installed for the increased production rate.

The existing South Crusher facility (primary crusher, conveyors and radial stacker) is not being modified, although throughput should increase to take advantage of the increased capacity in the South Mill.

The existing South Mill reclaim and omnicone circuits are not being modified, although throughput should increase to take advantage of the increased capacity in the South Mill.

Some control improvements at the South Crusher, South Mill and ancillary operations are proposed.

2. Description of raw materials, intermediates and products.

Copper concentrate. Asarco can also produce molybdenum concentrate and that operation is not affected by the proposed modification.

3. Description of alternating operating scenario.

Asarco reserves the option of using this equipment in any configuration to maintain the 31,000 dry tpd of new mined ore design rate (annual average) and 45,000 dry tpd of new mined ore (daily maximum).

4. Description of alternate operating scenario product(s), if applicable.

Not applicable.

5. Flow Diagram for All Processes

There is no change to the existing South Crusher and South Mill process flow diagrams. Additional equipment is being added, but it follows the same process principles. The process flow diagrams are included in Attachment E. A revised plot plan of the South Mill is also included in Attachment E.

6. A material balance for all processes (optional, only if emissions calculations are based on a material balance)

Not applicable.

7. Emissions Related Information

See Attachment C, which includes an Excel spreadsheet detailing all the calculations and extensive notes explaining the emissions approach used.

8. Citation and description of all applicable requirements as defined in 17.04.340.A.25.

No federal, state or county standards are directly implicated by the proposed change, which mostly adds to the wet grinding circuit at the South Mill. There will be increases in throughput (debottlenecking) of the South Crusher and the omnicone crushing and SAG reclaim circuits at the South Mill. Some of this equipment is subject to NSPS Subpart LL, Metallic Mineral Processing Plants, and PCC 17.16.360, Mining.

The emissions units and associated air pollution control devices are currently regulated under Asarco's Title V permit no. 2026 and the replacement units will be regulated under the same provisions.

Asarco has proposed to replace two existing scrubbers with a more efficient canister filters, control more points in the SAG reclaim and omnicone circuits, take voluntarily accepted emission limits that are closer to tested air pollution control device efficiencies, and add additional controls on the lime circuit so that this project will net out of PSD review.

An explanation of why PSD does not apply is included in the cover of this application and in Attachment G.

9. An explanation of any proposed exemptions from otherwise applicable requirements.

Not applicable.

10. The following information to the extent it is needed to determine or regulate emissions:
a. Maximum annual process rate (actual) for each piece of equipment that generates air emissions.

This information is presented in the revised equipment list for the South Crusher and South Mill, which is included in Attachment B.

b. Maximum annual process rate (actual) for the whole plant.

Same.

c. Maximum rated hourly process rate (potential) for each piece of equipment that generates air emissions

Same.

d. Maximum rated hourly process rate (potential) for the whole plant.

Asarco has proposed a circuit throughput limit for the South Crusher and South Mill of 12,500,000 dry tons/year of new mined ore each, to be tracked on a rolling 12 month-basis. This corresponds to a daily design rate of just under 34,250 dry tpd of new mined ore and is in addition to the existing 2000 tph limit on the South Primary Crusher and 200 tph limit on each omnicone crusher when all of the following are in operation: Mission Primary Crusher, Mission Secondary/Tertiary Crushing, and North Crusher.

e-g. Not applicable.

h. Limitations on source operations and any work practice standards affecting emissions.

Asarco has proposed a circuit throughput limit for the South Crusher and South Mill of 12,500,000 tons/year each, to be tracked on a rolling 12 month-basis. This corresponds to a daily design rate of just under 34,250 tpd and is in addition to the existing 2000 tph limit on the South Primary Crusher and 200 tph limit on each omnicone crusher when all of the following are in operation: Mission Primary Crusher, Mission Secondary/Tertiary Crushing, and North Crusher.

Asarco is proposing to replace the Ducon wet scrubber 10-108 with a replacement Farr canister filter rated at 21,000 scf/min and achieving a controlled emission rate of 0.003 gr/scf.

Asarco is proposing to replace the Ducon wet scrubber 30-150 with a replacement Farr canister filter rated at 25,000 scf/min and achieving a controlled emission rate of 0.003 gr/scf.

Asarco is proposing to duct presently uncontrolled emission points at Conveyor Transfer 20-244/245 to 20-266/268 and 20-266/268 to 30-134/136 to the new Farr canister filter 30-150.

Asarco is proposing to move the displaced Ducon wet scrubber (formerly 30-150) to control the intermediate ore stockpile feeders and the 20-251 to 20-255 conveyor transfer point. This is a 13,000 scf/min unit and Asarco proposes a 0.01 gr/scf limit.

Asarco is proposing to add a baghouse rated at 500 scf/min and achieving a controlled emission rate of 0.003 gr/scf to control the lime circuit emissions at the Lime Silo discharge, feeder, conveyor transfer, and transfer to lime ball mill.

Asarco will improve the capture efficiency of the 10-114 scrubber from 0.90 to 0.95 percent.

Asarco will add enhanced “fogging” style water sprays at the South Crusher ore dump. The new sprays are estimated to be 80% efficient and replace the existing system, which is estimated to be only approximately 50% efficient.

Asarco is proposing to accept voluntarily accepted emission limits on all remaining South Crusher and South Mill wet scrubbers (10-114 and 20-270) to 0.01 gr/scf, reduced from the present PCC process weight rate limit or NSPS Subpart LL limit of 0.022 gr/scf.

11. Description of all process and control equipment for which permits are required

See the cover to this application. Also see the equipment list in Attachment A.

12. Stack Information

Stack information is included in Attachment A.

13. Site Diagram

Included in Attachment E.

14. Air Pollution Control Equipment

The following air pollution control device changes are being made (in process order):

Asarco is replacing the existing water sprays at the South Crusher ore dump (formerly HFOPS-1, now PFOPS-0) with an enhanced water fogging system. The new system, which uses higher pressure water to create a finer mist of water for dust control, should achieve 80% control efficiency. The former system achieved approximately 50% control efficiency. Vendor data is included in Attachment F.

Asarco is proposing to replace the Ducon wet scrubber 10-108 with a replacement Farr canister filter rated at 21,000 scf/min and achieving a controlled emission rate of 0.003 gr/scf. The new Farr unit will retain the same equipment number. Vendor data is included in Attachment F.

Asarco is proposing to replace the Ducon wet scrubber 30-150 with a replacement Farr canister filter rated at 25,000 scf/min and achieving a controlled emission rate of 0.003 gr/scf. The new Farr unit will retain the same equipment number. Vendor data is included in Attachment F.

Asarco is proposing to duct presently uncontrolled emission points at Conveyor Transfer 20-244/245 to 20-266/268 and 20-266/268 to 30-134/136 to the new Farr canister filter 30-150.

Asarco is adding a water spray to the intermediate ore stacker 20-250, which is presently uncontrolled. Asarco is claiming a 70% control efficiency for this unit, based on standard engineering principles.

Asarco is proposing to move the existing Ducon wet scrubber 30-150 to control emissions from the intermediate ore stockpile feeders 20-252, 20-253 and 20-254 and the conveyor transfer point 20-251 to 20-255. This unit is rated at 13,000 scf/min and is proposed to achieve a limit of 0.01 gr/scf.

Asarco is proposing to add a Farr canister filter or bin vent rated at 500 scf/min and achieving a controlled emission rate of 0.003 gr/scf to control the lime circuit emissions at the Lime Silo discharge, feeder, conveyor transfer, and transfer to lime ball mill.

15. Not Applicable

16. Compliance Plan and Schedule

Asarco is currently in compliance with all requirements applicable to the South Crusher and South Mill. Asarco will continue to meet all applicable regulations. Asarco will timely comply with any new applicable requirements that come into effect during the permit term.

17. Compliance certification

Asarco will meet all compliance certification requirements set forth in its existing Class I permit or the requested permit revision at least annually, which satisfies this requirement. Asarco's responsible corporate official has certified this application as required. A compliance certification is enclosed in Attachment A, page 5.

18. Not Applicable

19. New major source or major modification requirements

Based on ASARCO's emission calculations contained in Attachment C, the proposed replacement does not trigger PSD review because the total emissions of the project are less than significant. A more complete discussion of PSD netting is included in Attachment G.

20. Calculations on which all information requested in this application are based

See Attachment C.

ATTACHMENT C

Emission Calculations and Supporting Materials

(Including CD with Excel spreadsheet)

This document provides support for the emissions estimates presented in this application in the Excel spreadsheet “South Mill Appl”.

Asarco has proposed the following throughput limitations:

South Crusher:

12,500,000 dry tons new mined ore/year.

South Mill:

12,500,000 dry tons new mined ore/year. Subordinate circuits based upon maximum design capacity.

Note **Comments**

- 1 PM and PM₁₀ emission factors are from AP-42, Chapter 11.24, Table 11.24-2, “Material Handling, Dry Ore” (1/95). Emissions are calculated as follows:

- 2 PM_{2.5} emission factor is not provided in AP-42, Chapter 11.24. Asarco has derived a PM_{2.5} value by comparing emissions from similar activities for which PM_{2.5} is provided in AP-42, including Crushed Stone, AP-42 Chapter 11.19.2 (8/04), and Iron & Steel, AP-42 Chapter 12.5 (1/95). Asarco’s rationale is as follows, where PM is PM, PM and PM_{2.5} values are from AP-42 (in lb/ton) and PM₁₀-R and PM_{2.5}-R are the ratios (unitless) of the pollutant to PM reported. A value for PM_{2.5} is then selected for metallic mineral processing:

Category	PM	PM ₁₀	PM _{2.5}	10/PM	2.5/PM	2.5/10	AP-42 Ref.
MM, Crushing, Dry ore	0.5	0.05	---	0.1	---	---	11.24-2
MM, Crushing, Wet ore	0.02	0.009	---	0.45	---	---	11.24-2
MM, Handling, Dry ore	0.12	0.06	---	0.5	---	---	11.24-2
MM, Handling, Wet ore	0.01	0.004	---	0.40	---	---	11.24-2
CS, Tert. Crush, Controlled	0.0012	0.00054	0.0001	0.45	0.083	0.185	11.19.2-2
CS, Conveying, Controlled	0.00014	4.6E-5	1.3E-5	0.329	0.0929	0.283	11.19.2-2
I&S, Stacking, pellet ore	0.0024	0.0011	0.00034	0.458	0.142	0.309	12.5-4
I&S, Stacking, lump ore	0.0003	0.00015	0.000043	0.5	0.143	0.287	12.5-4

Based upon this analysis, Asarco has chosen the following approach to estimating PM_{2.5} emissions from various activities:

- Crushing: Asarco will use PM_{2.5} = 0.185 PM₁₀, based on Crushed Stone, Crushing. It is anticipated that small fractions would be relatively less in this application because they are primary and secondary crushing, while the value is drawn from tertiary (e.g., the finest) crushing.
- Handling: Asarco will use PM_{2.5} = 0.283 PM₁₀, based on greater similarity of copper ore to crushed stone than iron ore. All values are within 0.02, so Asarco believes this is a reasonable interpretation.

The final values Asarco will use for PM_{2.5} are as follows:

Category	PM	PM ₁₀	PM _{2.5}	2.5/10
MM, Crushing, Dry ore	0.5	0.05	0.0093	0.185
MM, Crushing, Wet ore	0.02	0.009	0.0017	0.185
MM, Handling, Dry ore	0.12	0.06	0.017	0.283
MM, Handling, Wet ore	0.01	0.004	0.0011	0.283

- 3 *Standard Emissions Calculations for Control Devices.* The Mission Complex uses two basic types of emission control devices: wet scrubbers and dust collectors (fabric filters or canister filters). The basic emission calculation for these units is the following:

$$\text{Emissions} = \text{EF gr/scf} * \text{Q scf/min} * 60 \text{ min/hr} * 8760 \text{ hr/yr} * 1 \text{ lb/7000 gr} * 1 \text{ ton/2000 lbs}$$

Where:

- EF is the design/permit limit rate for PTE purposes and the most recently tested rate prior to the calculation period for actual emissions purposes.
- Q is the design air flow for PTE purposes and the most recently tested air flow prior to the calculation period for actual emissions purposes.

Asarco has no information on the speciated breakdown of emissions between PM, PM₁₀ and PM_{2.5} and has assumed that all emissions are PM_{2.5} as the most conservative assumption.

- 4 *Standard Emissions Calculations for Process Fugitives.* Process fugitive emissions come from loss of material that escape either capture (when enclosed or ducted to a control

device) or control (water sprays). The basic emission calculation for these units is the following:

$$\text{Emissions} = \text{EF}_{\text{PM}_x}, \text{ lb/ton} * \text{Throughput, ton/yr} * (1-\text{CE}) * 1 \text{ ton}/2000 \text{ lbs}$$

Where:

- EF_{PM_x} = the relevant emission factor for PM, PM_{10} or $\text{PM}_{2.5}$ set forth in Note #2 for the activity.
- Throughput is the PTE rate for PTE purposes and the actual (measured or estimated) throughput during the calculation period for actual emissions purposes.
- (1-CE) is the capture efficiency of any capture systems (e.g., enclosure or ducting) or control systems (e.g., water sprays) applied to the point. The capture efficiency will be discussed in the relevant note.

- 5 PFOPS-0, Ore dump for the South Crusher. The ore is dumped from trucks into a large, subgrade hopper. This ore is considered “dry.” *Existing*. Control is by partial enclosure and water sprays. Based upon observation, a capture efficiency of 25% was assigned to the existing partial enclosure. A relatively low water spray efficiency of 50% was assigned based on observation of the current system and a tendency for emissions to “roll” out during the initial dump. The roll out tendency diminishes as the dump continues. This gives a combined capture/control efficiency of $1 - [(1-0.5) * (1-0.25)] = 0.625$. *Proposed*. Asarco will add enhanced water fogging devices, raising their efficiency to approximately 80%. This gives a combined capture and control efficiency of $1 - [(1-0.25) * (1-0.8)] = 0.85$ or 85%.
- 6 PFOPS-1, Primary crusher. The primary crusher is fully enclosed, subgrade, and will be controlled by a new 21,000 CFM Farr dust collector rated at 0.003 gr/scf. Vendor design data for the Farr dust collector is presented in Attachment F. Because of the relatively full enclosure and evacuation, this unit is assigned a capture efficiency of 95%. The Farr dust collector is rated at 0.003 gr/scf control efficiency based on Vendor data.

According to the NSPS Subpart LL background information document and AP-42, Chapter 11.24, the “crusher” unit includes the hopper and apron feeders as part of the crusher. Therefore, process fugitives from the crusher (10-101) and the apron feeders (10-102) are combined and listed under 10-101.

- 7 PFOPS-2, Transfer. This is the transfer point between the 10-103 and 10-105 conveyors. It is controlled by existing Ducon wet scrubber (10-114). *Existing*. This unit has long

exhibited good control. It is estimated, based upon observation and condition, to have achieved approximately 90% capture. *Proposed.* This unit was refurbished in 2011 with a maximum air flow capacity, per Beu-Math Engineering, of 4800 scf/min. Based upon engineering design and observation, Asarco has assigned a 95% capture efficiency to this refurbished unit. Asarco proposes to set an enforceable limit of 0.01 gr/scf for this unit. Stack testing data supporting this limit is set forth in Attachment H.

- 8 HFOPS-2 & 3, Stackers. Stacker emissions are based upon throughput over the stacker using the standard equations in Note #4. For HFOPS-2, Coarse Ore Stacker, No. 10-105, the Control Efficiency is set 70% based upon the presence of water sprays and observation. For HFOPS-3, Intermediate Ore Stacker, No. 20-250, the existing control efficiency is zero; the proposed control efficiency is 70% based upon the addition of water sprays.
- 9 WFOPS-X. Stockpile wind erosion fugitive emissions could be estimated per AP-42, Chapter 11.19.2. However, the stockpile size and shape is not anticipated to be affected by the proposed changes. Therefore, based upon a pre-application meeting with PDEQ staff in May 2011, it was determined that emissions would continue to be calculated based upon the Emission Inventory basis of 0.000016 lb/ton based on AP-42, Table 11.19.2-2 (8/04).
- 10 Actual throughput for 2009 from 2009 Emission Inventory submitted to PDEQ.
- 11 SSOPS-1, Ducon wet scrubber 10-108 from stack test dated July 17, 2008, assuming 8760 hours. The scrubbers run virtually continuously.
- 12 SSOPS-2, Ducon wet scrubber 10-114 from stack test dated July 18, 2008, assuming 8760 hours. The scrubbers run virtually continuously.
- 13 Actual throughput for 2010 from 2010 Emissions Inventory submitted to PDEQ.
- 14 PFOPS-3, Coarse ore reclaim. *Existing.* The apron feeders 30-130 to 30-133 and receiving conveyors 30-134/136 are fully covered under the coarse ore stockpile and are evacuated to a Ducon wet scrubber 30-150. Based upon the extent of enclosure (estimated at 70% effective) and the venting (0.95%), total control efficiency is estimated at 0.985. *Proposed.* The existing Ducon wet scrubber will be replaced with a Farr or equivalent dust collector with greater capacity of approximately 25,000 scf/min and rated at 0.003 gr/scf. Vendor information is included in Attachment F.

- 15 PFOPS-4, SAG mill feed. *Existing.* The conveyor feeds 30-134/136 to the semiautogenous grinding (SAG) mills 30-201/202 are fully enclosed and vented to the Ducon wet scrubber 30-150. Based upon the extent of enclosure (estimated at 70% effective) and the venting (0.95%), total control efficiency is estimated at 0.985. *Proposed.* The existing Ducon wet scrubber will be replaced with a Farr or equivalent dust collector with greater capacity of approximately 25,000 scf/min and rated at 0.003 gr/scf. Vendor data is included in Attachment F.
- 16 PFOPS-5, SAG mills. The SAG mills 30-201/202 are a wet process, where the ore is mixed with water to produce a slurry. The ore and grinding balls grind together to produce a fine slurry. This is decanted through the double deck screens 30-203/204, with the overflow routed either to the SAG Reclaim Circuit or the Omnicone Crusher Circuit by a transfer box. Underflow reports in slurry form to the Ball Mills and eventually the froth flotation circuits.
- According to the NSPS Subpart LL background information document and AP-42, Chapter 11.24, the “wet grinding” unit includes the feeders and conveyors immediately attendant upon the grinding unit. In this case, this would include the SAG mill decant to the double deck screens (30-203/204), and the routing conveyors to the SAG Reclaim Circuit (20-238/241 to 20-244/245) and Omnicone Crushing Circuit (20-238/241 to 20-250). In addition, emissions from the wet grinding process are negligible. NSPS Subpart LL, background information document.
- 17 PFOPS-6 & -7, SAG reclaim circuit. Oversize material leaving the SAG mills is extremely wet (it was a water slurry upon exit). For the SAG Reclaim Circuit, where the oversize proceeds out to the transfer tower and is then returned to the SAG mills for further grinding, the “wet ore” values from AP-42, Chapter 11.24-2 are substituted for the “dry ore” values used in the South Crusher. Scrubber efficiency is reduced to 85% because of the wet nature of the ore.
- 18 SSOPS-3, *proposed* Farr Dust Collector. From Vendor data, the size of this collector is 25,000 scf/min and it is rated at 0.003 gr/scf. See Attachment F. The *existing* Ducon wet scrubber 30-150 from stack test dated July 16, 2008, assuming 8760 hours as the scrubber operates virtually continuously.
- 19 PFOPS-8, Omnicone circuit. This is wet ore collected from the doubledeck screens routed over conveyors 20-238/241 to 20-250, which becomes the intermediate ore

stacking conveyor. The transfer point is contained in the South Mill building and is assigned a capture efficiency of 70%.

- 20 PFOPS-9, Omnicone intermediate ore feed. The ore is drier at the point in the process and Asarco has returned to the “dry ore” factors. *Existing.* The apron feeders 20-252/254 and receiving conveyor 20-251 are fully covered under the coarse ore stockpile and are equipped with water sprays. Based upon the extent of enclosure (estimated at 70% effective) and the water sprays (50%), total control efficiency is estimated at 0.85. *Proposed.* The apron feeders and receiving conveyor will be ducted to a scrubber with an estimated capture efficiency of 90% and a rating of 14,800 scf/min and 0.01 gr/scf. Stack testing data supporting the proposed limit is found in Attachment H.
- 21 PFOPS-10, Transfer. *Existing.* The conveyor transfer 20-251 to 20-255 is uncontrolled. *Proposed.* The conveyor transfer point will be ducted to the relocated Ducon scrubber with an estimated capture efficiency of 90% and a rating of 14,800 scf/min and 0.01 gr/scf. Stack testing data supporting the proposed limit is found in Attachment H.
- 22 SSOPS-4A, Intermediate ore scrubber. This is a relocated Ducon scrubber rated at 14,800 scf/min and 0.01 gr/scf. There is no existing equivalent. Stack testing data supporting the proposed limit is found in Attachment H.
- 23 PFOPS-11, Omnicone crushers. There is a box enclosure at the crushers at both top and bottom (0.50) and all emissions are ducted (0.90) to a Ducon wet scrubber, for a combined control effectiveness of 0.95.
- 24 SSOPS-4, Omnicone scrubber. Vendor review shows Ducon wet scrubber at 13,000 CFM and Asarco has proposed a 0.01 gr/SCF limit based on past testing data enclosed in Attachment H.
- 25 PFOPS-12, Omnicone bypass. This is a circuit that bypasses the crushers. It is fully enclosed (rated at 0.5) and all emissions are ducted to a Ducon wet scrubber, for a combined effectiveness of 0.95.
- 26 PFOPS-13, Omnicone return. This is the ore transfer back to the SAG Reclaim Circuit for delivery to the SAG mills. It is a standard duct enclosure rated at 95% capture. It is controlled by the proposed Farr dust collector (see SSOPS-3).

- 27 PFOPS-14, HFOPS-4 and -5 and WFOPS-3, Concentrate circuit. Concentrate is generated at the mill. This is in a slurry until it reaches the concentrate filter press, where most of the water is removed (to approximately 10% moisture). It drops on to a conveyor in a fully enclosed area from which emissions have not been seen. Accordingly, the “wet ore” values are used for all handling operations. At the first step, where concentrate falls from the filter onto the conveyor, the process is fully enclosed and in the mill building and 100% capture is assigned (PFOPS-14). At the second point, where concentrate exits the conveyor into the enclosed building (HFOPS-4) and third point, where the concentrate is loaded within the building (HFOPS-5), a 0.7 factor is assigned for the proposed, mostly enclosed concentrate handling building and a factor of 0.50 is applied to HFOPS-4 and 0 to HFOPS-5 for the existing practice. Asarco also proposes to use the 0.7 factor for wind erosion control with the new building and 0 for the existing practice, where the concentrate was potentially exposed to the wind.
- 28 PFOPS-16 through -19, Lime circuit. *Existing.* Lime is loaded pneumatically into the lime silo, with emissions controlled by a Mikro-Pulsaire bin vent. Process fugitive emissions from this operation were estimated using the lime manufacturing, enclosed truck loading, emissions factors from AP-42, Chapter 11.17, Table 11.17-4 (2/98), which provides a value of 0.61 lbs/ton. Lime feeds from the silo onto a conveyor and is conveyed to a ball mill, where it is mixed with water to produce milk of lime. All of these operations are uncontrolled and emissions were estimated using the lime manufacturing, product conveying and transfer, emissions factors from AP-42, Chapter 11.17, Table 11.17-4 (2/98), which provides a value of 2.2 lbs/ton. *Proposed.* Asarco will install a new Farr bin vent to replace the existing Mikro-Pulsaire bin vent. The new bin vent will be larger (500 CFM) and will include ducting to collect emissions from filling the silo; silo loading onto the conveyor; and conveyor drop into the ball mill. Process fugitives will be controlled by enclosure, either total (silo loading by pneumatic process) or partial (conveyor and ball mill loading) and ducting to the Farr bin vent. Control efficiencies are estimated at 97.5% for the silo loading and conveyor loading and 95% for the ball mill loading. Vendor test data on the proposed unit is included in Attachment F.
- 29 SSOPS-6, Lime dust collector. *Existing.* Lime loading at the silo only is controlled by a Mikro-Pulsaire bin vent rated at 105 scf/min and 0.1 gr/scf. *Proposed.* Asarco will install a Farr Dust Collector rated at 500 scf/min and 0.003 gr/SCF. Please see the Vendor information included in Attachment F.

- 30 Flotation process. This is a wet process and PM emissions are negligible per NSPS background information document.
- 31 Wet scrubber 30-150 data from stack test dated July 16, 2008.

ATTACHMENT D

Compliance Assurance Monitoring (CAM) Plans

**Compliance Assurance Monitoring (CAM) Plan
Farr Dust Collector 10-108 (SSOPS-1)**

A. Unit Classification

Units 10-108 is a Farr Dust Collector. It has a pre-control device potential to emit of greater than 100 tons/year, but has post-control device emissions of less than 100 tons per year. The control device is used to comply with the proposed construction permit/permit revision conditions. Therefore, the 10-108 unit is subject to CAM as a “small” unit and requires at least one measurement per operating day. This unit is not subject to NSPS.

B. CAM Plan

1. Covered Units

This CAM Plan applies to Farr Dust Collector 10-108.

2. Indicators

The Indicators are pressure differential and opacity. [40 CFR 64.3(a)(1)]

3. Monitoring Approach

- a. Pressure differential across the baghouse/cartridge dust collector shall be measured by a pressure gauge. Pressure differential readings shall be taken and recorded daily.
- b. Visible emissions from the control equipment shall be monitored in accordance with Method 22. Visible observations shall be taken and recorded daily.
- c. A Method 9 observation is required for any control equipment where corrective action does not eliminate visible emissions within 48 hours. Daily Method 9 observation shall continue until such time as the visible emissions are eliminated, in which case Method 22 monitoring shall resume under paragraph (b), or until 10 days of consistent opacity (+/- 2.5%) is observed. This opacity, which must be less than 15%, then becomes the “baseline opacity.”
- d. If baseline opacity is established, the Permittee shall notify PDEQ and submit the baseline opacity data. Permittee shall monitor the visible emissions from the control equipment daily using a trained Method 22 observer who will indicate whether emissions are “normal,” meaning they are at or below the baseline level, or “abnormal,” meaning that they are above the baseline level.

4. Quality Assurance/Quality Control (QA/QC)

Operate and maintain pressure indicators in a manner consistent with good air pollution control practices. [40 CFR 64.3(b)(3)]

5. Indicator Range/Threshold [40 CFR 64.3(a)(2) & (3)]

- a. Pressure differential range for the dust collectors and bin vents shall be set initially as 0.5 to 2.5 inches of water
- b. After a successful stack test, the pressure differential range shall be set at +/- 30% of the average established during the stack test.
- c. For opacity monitored pursuant to paragraph 3.b, the threshold shall be any visible emissions.
- d. For opacity monitored pursuant to paragraph 3.d, the threshold shall be abnormal emissions.

6. Excursion/Exceedance Determinations:

An excursion event is any of the following conditions: [40 CFR 64.6(c)(2)]

- a. Any pressure differential reading outside the indicator range is an excursion.
- b. If the dust collector is monitored pursuant to paragraph 3.b, any visible emission is an excursion.
- c. If the dust collector is monitored pursuant to paragraph 3.d, any abnormal visible is an excursion.
- d. Any differential pressure reading or visible emission excursion under 6.b or 6.c that is not investigated and required corrective measures, if any, not taken within 48 hours is a deviation.
- e. Any visible emission that exceeds the applicable opacity standard is an exceedance.

C. Justification

Dust collectors are a highly reliable control device for use in the mining industry. The primary indicators of dust collector performance for smaller units, such as those in use at the Mission Complex, are differential pressure and visible emissions observations. Differential pressure provides a direct measurement of whether air is passing through the dust collector or bin vent properly. Too low of differential pressure indicates that there is a hole in the filter media or that it is not set properly, allowing air to bypass the filter media. Too high of differential pressure indicates that the filter media is clogged and not allowing the proper passage of air. Visible emissions are a good secondary indicator of problems with the filter media.

Stack testing will verify that the Farr dust collector can achieve its 0.003 gr/scf emission limit. It will also verify that the unit can achieve this level of control using the initial manufacturer's design specifications for pressure drop across the unit. If not, then the pressure drop will be adjusted to reflect the range during a successful stack test. Pressure drop will then be used to monitor control device performance. Trending data will be used to assess when major maintenance may be required in addition to the manufacturer's scheduled maintenance.

Daily Method 22 readings, which are anticipated to show “no emissions,” provide a good secondary indicator of performance. A “no observation” of opacity also demonstrates compliance with the opacity standard.

The modified Method 22, which is used if, contrary to expectation, small levels of opacity are observed that are compliant with the grain loading standard, allows for quick detection of variations from the demonstrated level of performance.

The provision for corrective action when an excursion is detected will assure that the units operate in compliance and give a good assurance of compliance.

Compliance Assurance Monitoring (CAM) Plan
Wet Scrubbers 10-114, 20-256, 20-270 (SSOPS-2, SSOPS-4A, SSOPS-4)

A. Unit Classification

Units 10-114, 20-256 and 20-270 are wet scrubbers. Each has a pre-control device potential to emit of greater than 100 tons/year, but has post-control device emissions of less than 100 tons per year. The control device is used to comply with the proposed construction permit/permit revision conditions. Therefore, each unit is subject to CAM as a “small” unit and requires at least one measurement per operating day.

B. CAM Plan

1. Covered Units

This CAM Plan applies to wet scrubbers nos. 10-114, 20-256 and 20-270.

2. Indicators

The indicators are visible emissions, scrubber liquid flow rate and pressure differential. [40 CFR 64.3(a)(1)]

3. Monitoring Approach

- a. Scrubber flow rate and pressure differential shall be measured at least daily on operating days. [40 CFR 60. 40 CFR 64.3(b)(4)(iii)]
- b. Visible emissions from the control equipment shall be monitored in accordance with Method 22. Visible observations shall be taken and recorded daily.
- c. A Method 9 observation is required for any control equipment where corrective action does not eliminate visible emissions within 48 hours. Daily Method 9 observation shall continue until such time as the visible emissions are eliminated, in which case Method 22 monitoring shall resume under paragraph (b), or until 10 days of consistent opacity (+/- 2.5%) is observed. This opacity, which must be less than 15%, then becomes the “baseline opacity.”
- d. If baseline opacity is established, the Permittee shall notify PDEQ and submit the baseline opacity data. Permittee shall monitor the visible emissions from the control equipment daily using a trained Method 22 observer who will indicate whether emissions are “normal,” meaning they are at or below the baseline level, or “abnormal,” meaning that they are above the baseline level.

4. Quality Assurance/Quality Control (QA/QC)

Operate and maintain flow/pressure indicators in a manner consistent with good air pollution control practices. [40 CFR 64.3(b)(3)]

5. Indicator Range/Threshold [40 CFR 64.3(b)(2) & (3)]

- a. For scrubber flow rate, the range shall be $\pm 30\%$ of the average obtained during the most recent performance test. Initially, this shall be 43.5 gpm for new scrubber 20-256 and 37.5 gpm for scrubber 20-270 until the first performance test is conducted.
- b. For pressure differential, the range shall be ± 30 percent from the average obtained during the most recent performance test. Initially, this shall be the range 5.0 to 6.5 inches of water until the first performance test is conducted.
- c. If a daily reading is outside the indicator range, complete an investigation and any corrective action, if needed, within 48 hours.
- e. For opacity monitored pursuant to paragraph 3.b, the threshold shall be any visible emissions.
- f. For opacity monitored pursuant to paragraph 3.d, the threshold shall be abnormal emissions.

6. Excursions Determinations:

- a. An excursion event is any of the following conditions: [40 CFR 64.6(c)(2)]
 - i. Any daily reading in which the average scrubber pressure differential differs from the average obtained during the most recent performance test by more than ± 30 percent.
 - ii. A daily reading during which the average liquid flow rate is more than ± 30 percent of the average obtained during the most recent performance test.
- b. If the dust collector is monitored pursuant to paragraph 3.b, any visible emission is an excursion.
- c. If the dust collector is monitored pursuant to paragraph 3.d, any abnormal visible is an excursion.
- d. Any differential pressure reading or visible emission excursion under 6.b or 6.c that is not investigated and required corrective measures, if any, not taken within 48 hours is a deviation.
- e. Any visible emission that exceeds the applicable opacity standard is an exceedance.

C. Justification

Wet scrubbers are a highly reliable and durable control device for use in the mining industry. The primary indicators of wet scrubber performance are scrubber pressure differential and scrubber liquid flow rate, which are the measurements specified in the applicable NSPS for these units. Differential pressure provides a direct measurement of whether air is passing through the wet scrubber properly. Too high of a differential pressure indicates that there is insufficient loading on the scrubber, which may indicate a blockage in the scrubber. Too low of a differential pressure may indicate fan motor problems. Liquid flow rate is important to ensure that adequate scrubbing liquid is available to remove the dust particles.

Stack testing will verify that the wet scrubbers can achieve their 0.01 gr/scf emission limit. It will also verify that the unit can achieve this level of control using the initial manufacturer's design specifications for pressure drop across the unit and liquid flow rate. If not, then the pressure drop and/or liquid flow rate will be adjusted to reflect the range(s) during a successful stack test. Pressure drop and liquid flow rate will then be used to monitor control device performance. Trending data will be used to assess when major maintenance may be required in addition to the manufacturer's scheduled maintenance.

Daily Method 22 readings, which are anticipated to show "no emissions," provide a good secondary indicator of performance. A "no observation" of opacity also demonstrates compliance with the opacity standard.

The modified Method 22, which is used if, contrary to expectation, small levels of opacity are observed that are compliant with the grain loading standard, allows for quick detection of variations from the demonstrated level of performance.


The provision for corrective action when an excursion is detected will assure that the units operate in compliance and give a good assurance of compliance.

ATTACHMENT E

Revised Site Plan and Process Flow Diagrams



PRELIMINARY
NOT FOR CONSTRUCTION

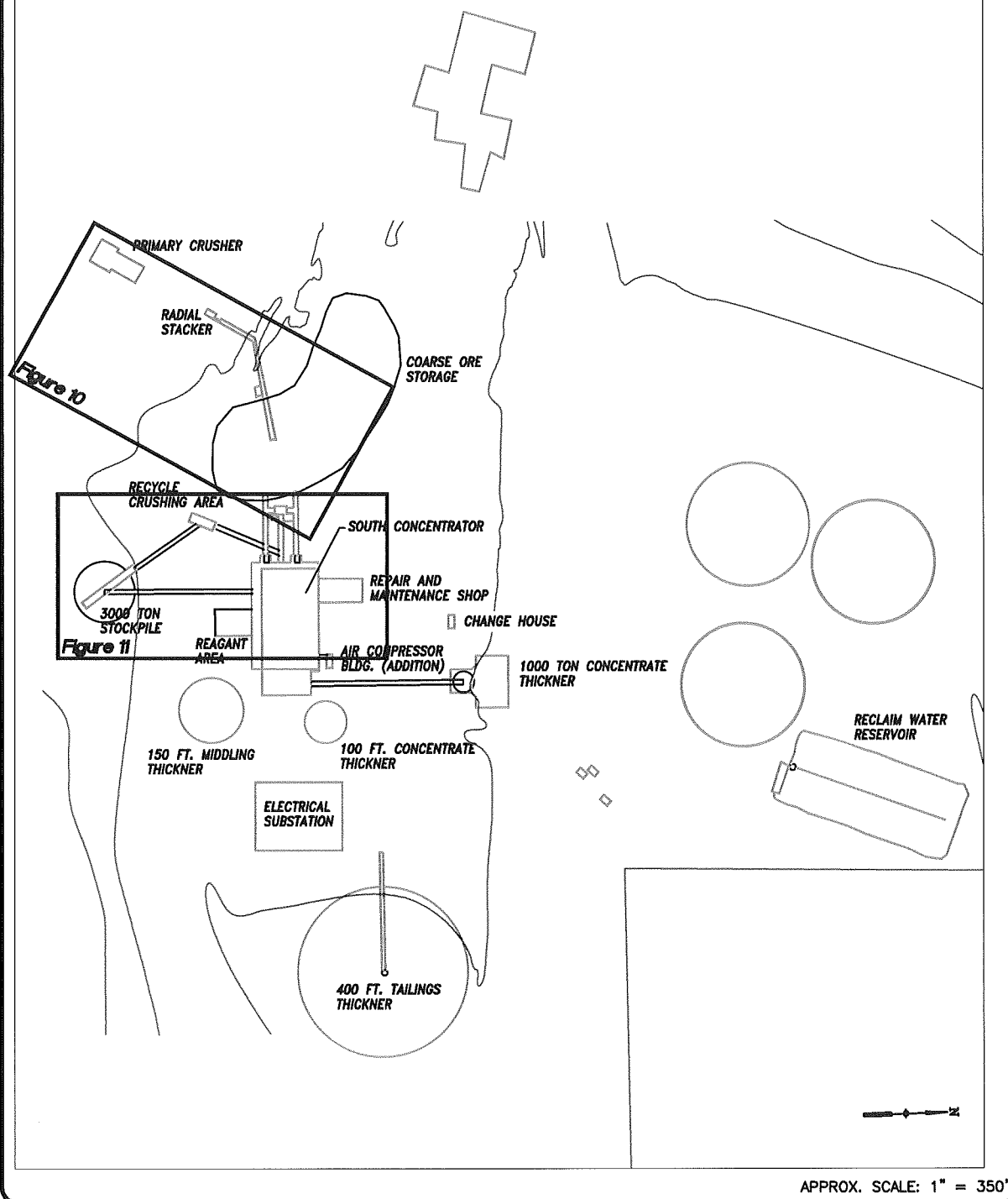
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REV. No.  DATE 12/20/10		

DRAWING TITLE	GENERAL ARRANGMENT SOUTH MILL UPGRADE PLAN
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ASARCO LLC
Mission Complex
South Mill Expansion
Sahuarita, AZ

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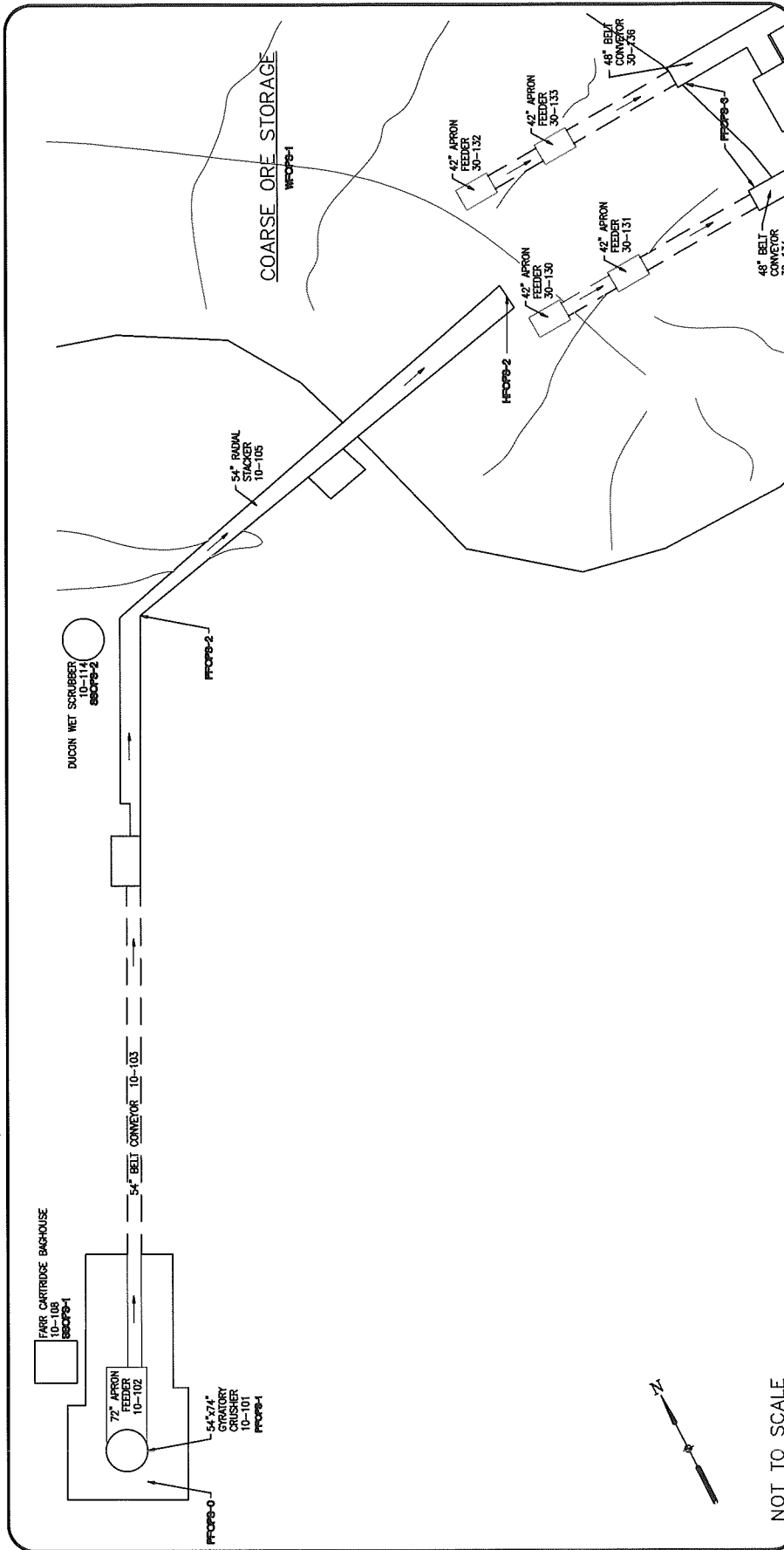
ASARCO – MISSION AIR PERMIT

Mission South Mill

Project No. : 934X009A

JUNE 2011

FIGURE 1



NOT TO SCALE

EPN's: SSOPS-1 PFOPS-1
 SSOPS-2 PFOPS-2
 HFOPS-2 PFOPS-3
 WFOPS-1
 PFOPS-0

MISSION AIR PERMIT

Mission South Primary Crusher and Stockpile – Equipment Location

Project No. 934X009A

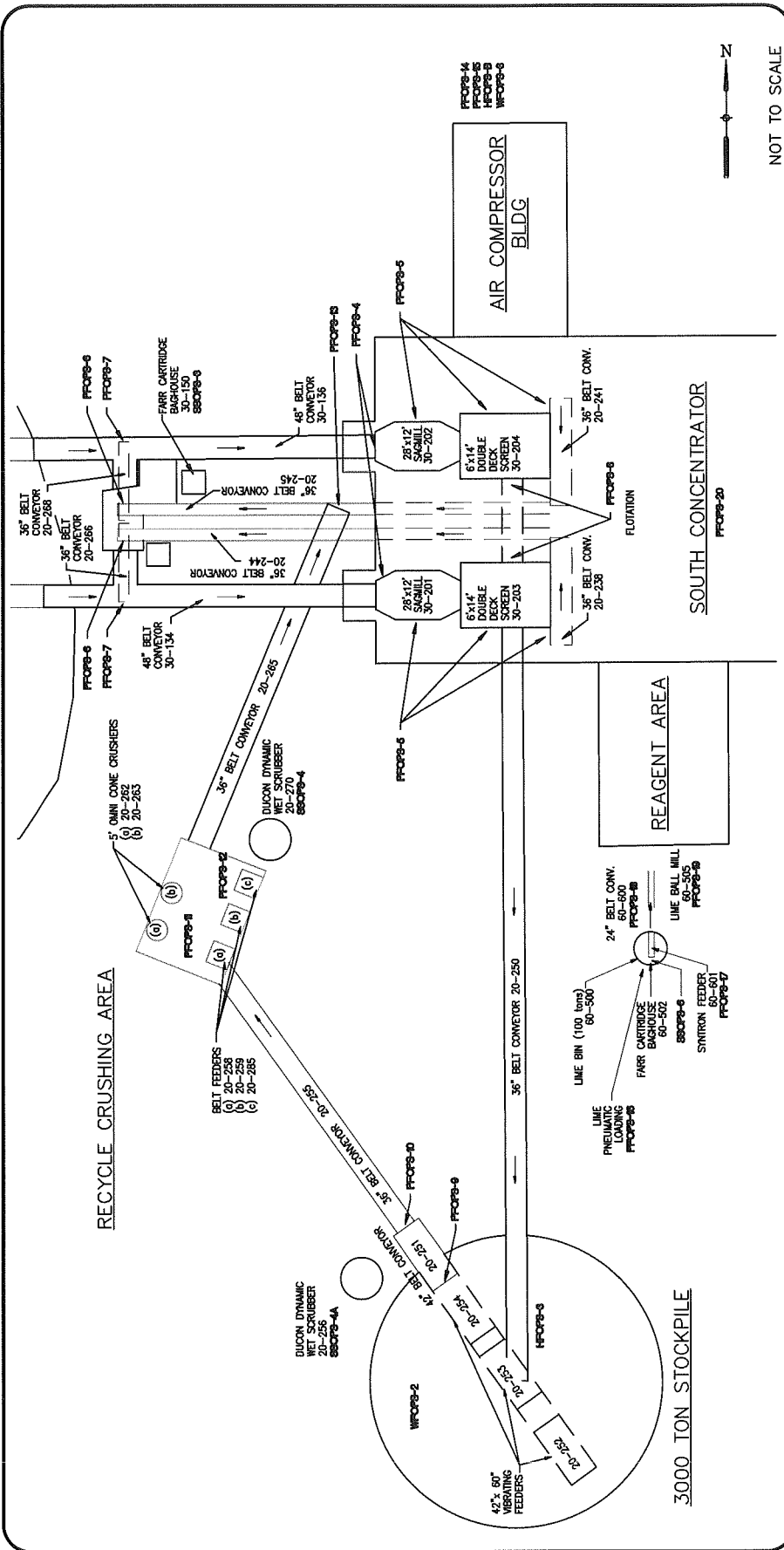
FIGURE 2

Drawn By: MKE

Checked By: JE

Date: JUNE 2011

ASARCO
MISSION COMPLEX



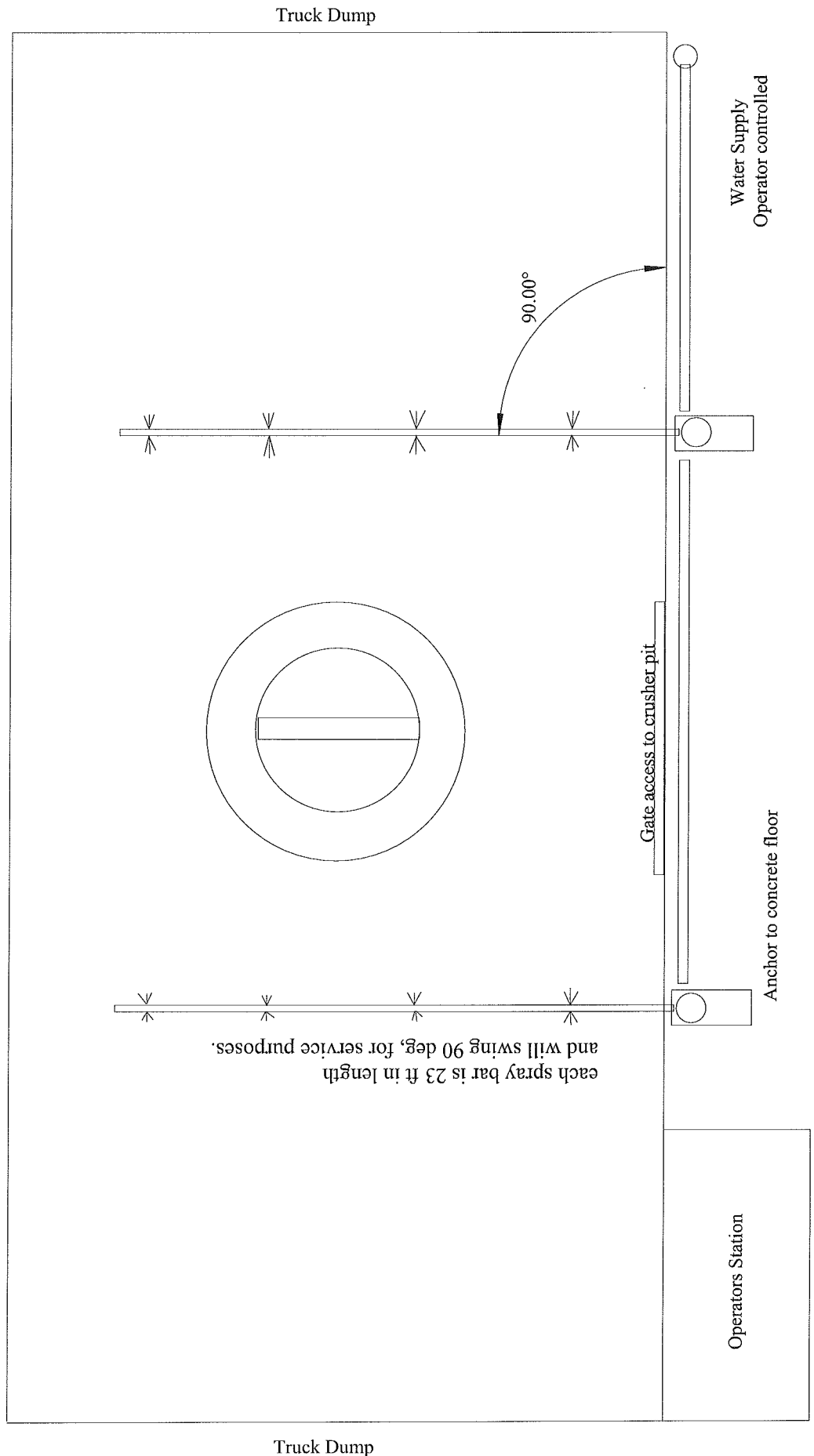
NOT TO SCALE

MISSION AIR PERMIT			
Mission South Concentrator – Equipment Locations		FIGURE 3	
Project No. 934X009A		Date: JUNE 2011	
Drawn By: MKE	Checked By: JE		

EPN's:	SSOPS-3	PFOPS-4	PFOPS-10	PFOPS-15	PFOPS-20
	SSOPS-4	PFOPS-5	PFOPS-11	PFOPS-16	HFOPS-3
	SSOPS-4A	PFOPS-6	PFOPS-12	PFOPS-17	HFOPS-A
	SSOPS-5	PFOPS-7	PFOPS-13	PFOPS-18	HFOPS-B
	SSOPS-6	PFOPS-8	PFOPS-14	PFOPS-19	WFOPS-2
		PFOPS-9			WFOPS-3

ATTACHMENT F

Vendor Data



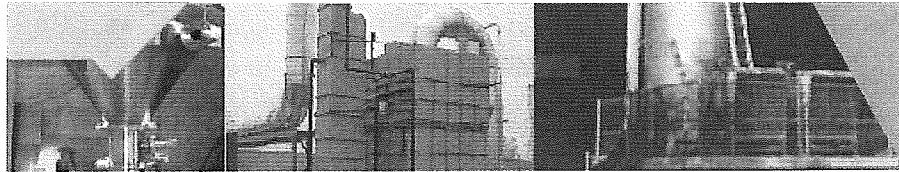
each spray bar is 23 ft in length and will swing 90 deg, for service purposes.

Note: Wet Dust suppression system will be controlled by on / off function by operator. dust suppression will be supplied through means TNJ Industries DCU unit chemical mix.

TNJ Industries Inc.

Not To Scale	South Dump Pocket
Spray bar locations	

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Today is Fri, July 22, 2011

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...MOUSE OVER NEWS TO SLOW
 first of its kind in India.

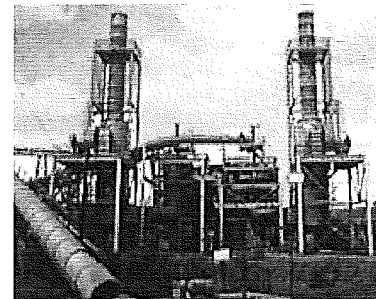
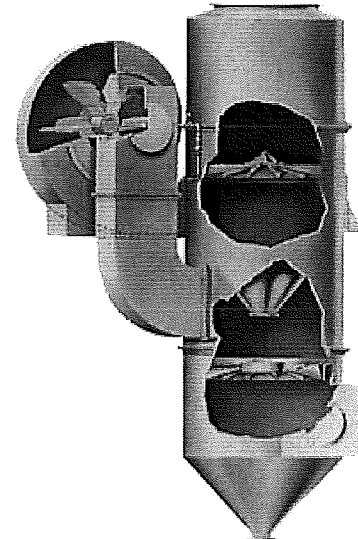
DUCON NEWS

Dynamic Wet Scrubbers

TYPE UW-4 This Ducon Patented UW-4 Scrubber is a maintenance free unit, complete with integral wet fan, achieving high efficiency with medium pressure drop in applications involving heavy dust loads, and abrasive materials.

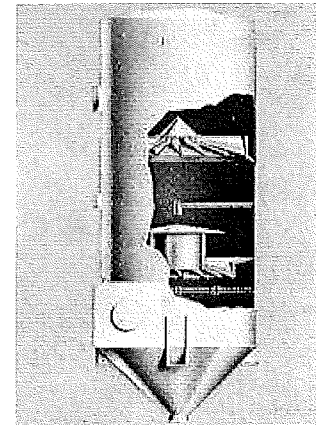
Applications:

- Pulp &, Paper; Kraft Process
- Black Liquor Recovery Boilers
- Dissolving Tanks
- Lime Kilns, Shakers & hydrators
- Bark & Auxiliary Boilers
- Evaporation Vents
- Lime Sludge Kilns
- Ore Dryers
- Carbon Black Plants
- Dyes Manufacture
- Fertilizer Plants
- Limestone Plants
- Paper Grinding
- Pelletizing Operations
- Sintering Plants
- Soda Ash Plants



Advantages of UW-4

- 99.9% Particulate + collection efficiency in 1 to 2 micron range
- Achieves 0.006 gr/SCFD outlet loadings
- Handles high inlet dust loads
- Low water rates (2 to 3 gal/1000 saturated acfm)
- Compact assembly
- Ideal for combined gas absorption and particulate control.
- Integral self-cleaning wet fan
- Non-clogging nozzles
- Water level control not required
- Low pressure drop
- Rugged construction & maintenance-free



W-3 Dynamic Scrubber

This compact, unitized scrubber with self-cleaning wet fan features high dust collection efficiency in minimum space with low water requirements. Rugged construction virtually eliminates maintenance problems.

Multivane Centrifugal Scrubber

The Multivane Centrifugal Scrubber is particularly suited for applications involving heavy dust loads and large particulate. This unit operates with centrifugal action between gas stream and liquid and can be designed with either spin vanes or spray manifolds for liquid distribution. High efficiencies are obtained for particles in the



Industrial Dust Collectors and Fume Collection Equipment

Select a region: Americas - English

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[Home](#)[About Us](#)[Products](#)[Applications](#)[Contact Us](#) [Gold Series®](#)[Customer Installation Photos](#)[Case Studies](#)[Who's Using Farr](#)[Testimonials](#)[Industry Articles](#)[Total Cost of Ownership](#)

Dust Collectors for Mining

[Home](#) > [Mining Focus](#) > [Benefits of the Gold Series for Mining](#)

Benefits of the Gold Series® for Mining

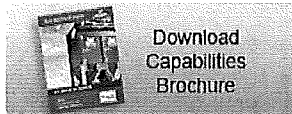
High entry cross-flow inlet eliminates upward air velocities that can hold fine powder up in the filters reducing re-entrainment of the fine particles.

Vertically arranged filters shed all the metal particulate - vs. horizontal filters which allow the metal to build on top of the filter.

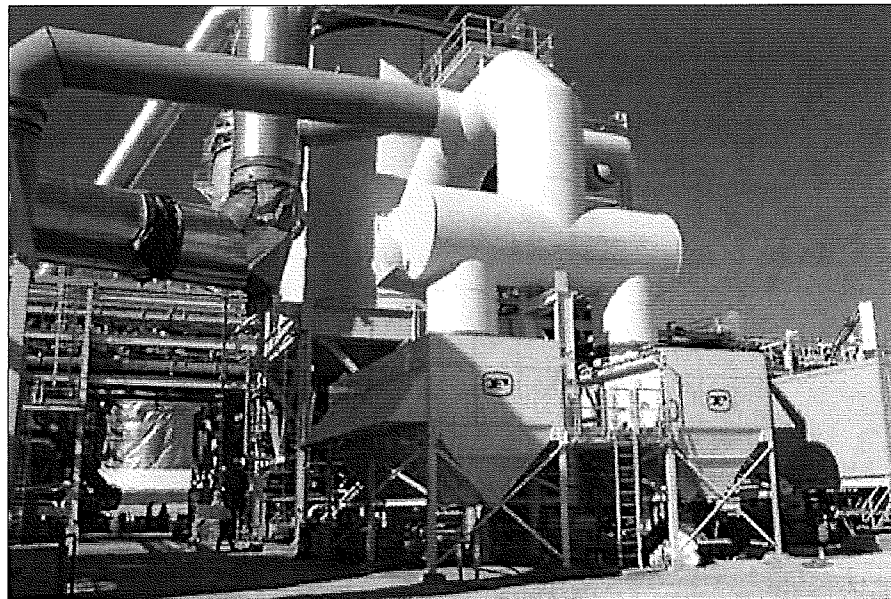
High efficiency filters stop 99.99% at 0.5µ of the dust!

Special treated filter media repels the fine particle for lower pressure drop and long filter life.

Gold Cone® filter cartridge provides 25% more media for long service life.



Company Info

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Two GS96 Units at a Nickel Mine.

Follow. Connect. Watch. Learn.



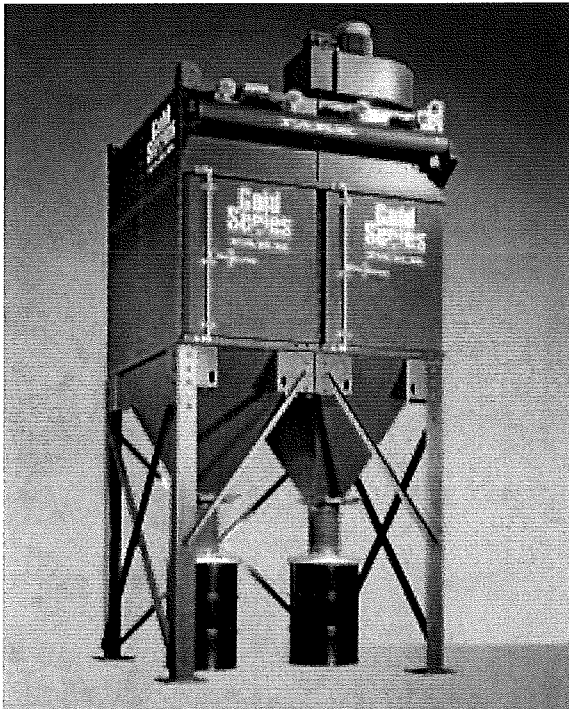
The Gold Series collector has a much smaller footprint than a conventional baghouse and operates at lower pressure drop. Stack testing of the Gold Series collector in mining applications has measured less than .0005 grains per cubic foot of emissions, about half the emissions level for which the collectors were permitted. What sets Farr apart as the leader in high efficiency filtration design is the new Gold Cone cartridge filter.

The pleated filters are mounted vertically inside the collector, eliminating the problems of dust blinding and premature failure that sometimes occur with horizontally installed filters. HemiPleat® high efficiency cartridges and a cross flow inlet design allow the Gold Series to handle very heavy loadings that horizontal cartridges cannot.

Next: Custom Components for Mining Applications

GOLD SERIES®

Dust Collector Comparison Sheet

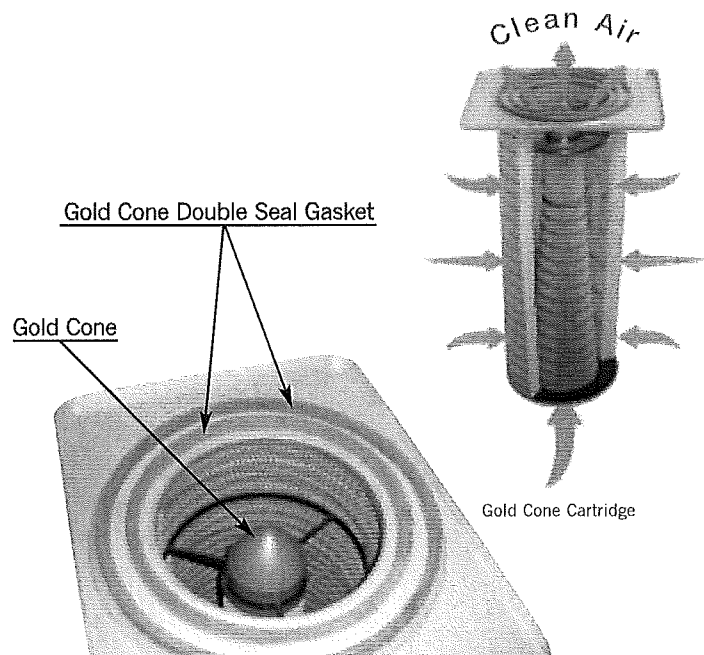


Gold Series® Collectors feature a modular design for optimum field flexibility. Each module accommodates airflows up to 4,000 cfm using four cartridges mounted in a symmetrical frame. Additional modules may be added to meet total airflow requirements of 100,000 cfm and beyond.

**Looks Like a Safe Because
It's Built Like a Safe.**

- Confused about your dust collector proposals?
- Trouble deciding who's offering apples and who's offering oranges?
- What are the real differences in the construction of the unit?
- Are there really differences in the quality of the filter elements?
- Which manufacturers have real control over product quality?
- Who stands behind their work?

These are just a few of the questions that should be answered when making a dust collector purchase. We have made it simple to compare the Gold Series with the rest of the field with this simple **Dust Collector Comparison Sheet**. We encourage you to put us to the test and understand why the Gold Series Dust Collector is the best in the business. When you have a better dust collector you're willing to compare.



F
FARR
Air Pollution Control

camfil
FARR

Product Sheet

Dust Collector Comparison Sheet

SAFE AIR FOR A SAFE WORK ENVIRONMENT

Air Pollution Control

Dust Collector Comparison Sheet

	GOLD SERIES	COMP #1	COMP #2	COMP #3
Gold Series® Construction				
Powder Painted Interior and Exterior	YES, STD			
Rugged 7 & 10 Gauge Construction	YES, STD			
Stressed for +/- 25" W.C.	YES, STD			
Modular Flexibility (can add on later)	YES, STD			
Variable Air Inlet Location	YES, STD			
Variable Air Outlet Location	YES, STD			
High Entry Crossflow Inlet (Eliminates Upward "Can" Velocity)	YES, STD			
Abrasion Resistant Inlet Baffle	YES, STD			
Hinged Cartridge Access Doors	YES, STD			
Cam-lock Tool-less Door	YES, STD			
Lock-Out/Tag-Out Door	YES, STD			
Fast Cambar Cartridge Removal	YES, STD			
Various Hopper Configurations	YES, STD			
Manufactured in our ISO 9001 Facility	YES, STD			
Model #				
Weight of Dust Collector				
Gold Cone Cartridges				
Cartridge Quantity				
Filter Media Area (sq. ft.)				
Air to Media Ratio (cfm/sq. ft.)				
HemiPleat	YES, STD			
Vertical Cartridge – Sheds Dust	YES, STD			
Media Efficiency 99.99% on 0.5 micron	YES, STD			
Impregnated Silicone for Moisture Resistance	YES, STD			
Inner Cone for Lower Pressure Drop	YES, STD			
Double Seal Gaskets	YES, STD			
No Outer or Inner Cage to Restrict Airflow	YES, STD			
Manufactured in our ISO 9001 Facility	YES, STD			
Media Options Available	YES, STD			
Miscellaneous				
Units up to 10,000 cfm in Stock	YES, STD			
Lead Time on Stock Units – 1 Day	YES, STD			
Lead Time on STD Units – 2/4 Weeks	YES, STD			
Replacement Cartridge in Stock	YES, STD			
Full Service Test Lab	YES, STD			
Factory ISO 9001	YES, STD			
On Call Service Department	YES, STD			
National/International/Local Rep Organization	YES, STD			
National/International Manufacturer	YES, STD			
Standard Available Options				
Explosion Vents				
Rotary Valves				
Drum Cover Kits				
Top Mount Fans with Exhaust Damper				
NEMA 7/9 Electricals				
Hopper Access Doors				
Sprinkler Kits				
Dust Level Probes				
Dust Bin with Drawers				
Trough Hopper or Custom Hoppers				
Stainless Steel Construction				
Engineered to your Specification				



FARR

Air Pollution Control

Farr APC is a proud member of the Camfil Farr group.

SAFE AIR FOR A SAFE WORK ENVIRONMENT

3505 Airport Rd. • Jonesboro, AR 72401 • 870-933-8048 • Fax: 870-933-8380
www.farrapc.com • e-mail: filterman@farrapc.com • 800-479-6801

© 2005 Farr Air Pollution Control
Additional APC offices and factories in Laval, Canada (450-629-3030), and UK (44-121-707-8211)



Looks Like a Safe Because It's Built Like a Safe.

It looks like a safe because it's built like a safe.

camfil
FARR
AIR POLLUTION CONTROL

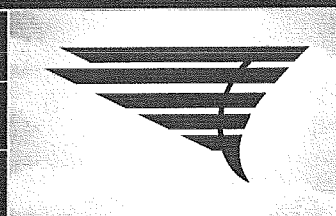


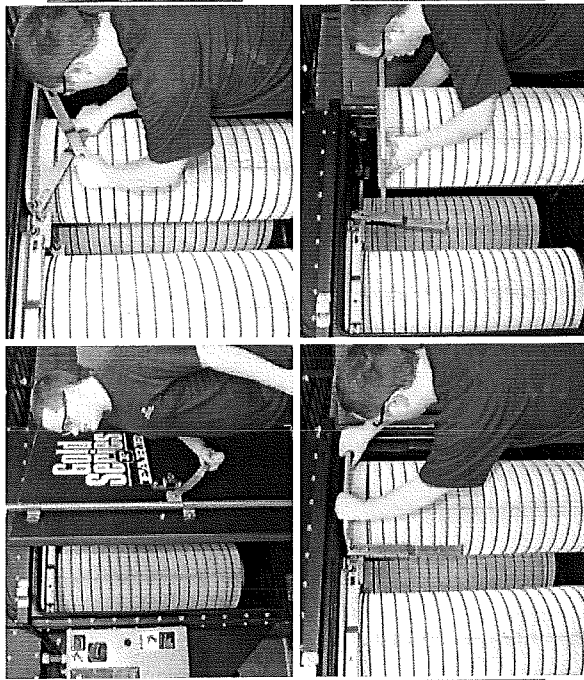
Gold Series®

Camfil Farr APC

Gold Series® Brochure

Air Pollution Control





Easy Maintenance

The service benefits are numerous. A heavy gauge access door uses an easy-to-use lift cambar in place of the usual threaded handle, facilitating entry into the collector. The door is fully-reversible for access from either side and has an exclusive lock-out feature for worker safety. Cartridge service is further simplified through a cambar system that allows faster, trouble-free change-out.

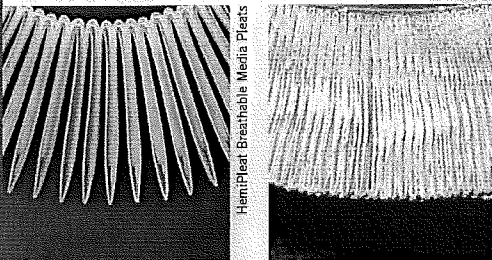
The Most Advanced Dust Collector Media Ever Made

- Poly-Tech™ media's filtration efficiency is 99.99% on the 0.5 μ and larger particles.
- The Gold Series® meets the 5 mg/m³ or less emissions requirement to recirculate air back on non-hazardous dusts in most cases.
- Poly-Tech media is offered with a flame resistant treatment and carbon impregnated for static drain.
- Other media options include Dura-Pleat® for sticky dusts and PTFE for the demanding applications.
- HemiPleat Nano media consists of Poly-Tech media with a microporous nanofiber coating for excellent efficiency and dust release characteristics.

Gold Cone™ Filter Media Options:

- 325 Sq. Ft. HemiPleat® Filters (Media Area) —180°F Max
- HMPTS—Poly-Tech Standard
 - HMPTC—Poly-Tech Carbon Impregnated
 - HMPTF—Poly-Tech Fire Retardant
 - HMPTU—Poly-Tech Ultra High Efficiency
 - HMPTUF—Poly-Tech Ultra High Efficiency, Fire Retardant
 - HMPTNFR—HemiPleat Nano, Fire Retardant
 - HMPTNST—HemiPleat Nano
- 225 Sq. Ft. Dura-Pleat Filters (Media Area) —250°F Max, Washable
- DPS—Dura-Pleat Standard Spun-Bond Polyester
 - DPA—Dura-Pleat Aluminized Finish (static drain)
 - DPO—Dura-Pleat Oleophobic Treatment (moisture resistant)
 - DPT—Dura-Pleat with Teflon® Membrane

Special 350° F high temp Nomex® and PTFE cartridges also available.



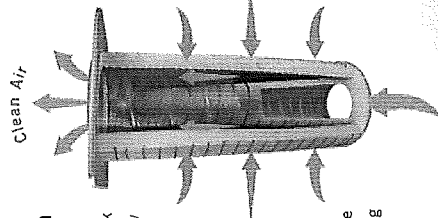
HemiPleat vs. Typical Pleats

No matter which dust collector you have, the HemiPleat filter can improve its performance.

Guaranteed.

Media Comparison

The HemiPleat's high quality uniform pleat pack establishes the superiority of this cartridge over all other products in the market. The difference in pleating quality can be seen at left in a comparison against the media pack with typical industry pleats. Notice the difference in pleat spacing and alignment.



HemiPleat Advantages

- Lower pressure drop through open pleat spacing improves cleaning efficiency, which reduces energy costs through less compressed air consumption during cleaning in many applications.
- More filtration media for improved performance and longer life.
- The separation beads, not the media pleats, contact the inner cage to protect the media from frictional damage.

Typical Applications:

- Mining
- Welding Smoke/Fume
- Pharmaceutical
- Powder/Bulk Materials
- Sand Blasting
- Nuisance Dust Ventilation
- Folding Carton and Printing
- Wood Processing
- Grain/Agriculture
- Chemical Processing
- Paper Scrap Systems
- Plasma/Laser Cutting
- Thermal Spray
- Grinding
- Powder Painting/Pigments

Gold Series® offers modular design for optimum flexibility—delivered fast!

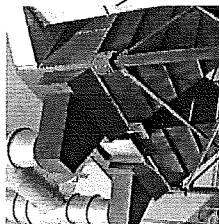
We are very happy with the Farr Dust Collector. The dust collection solution was purchased for our CNC plasma cutter to replace a horizontal cartridge dust collector due to short filter life. The current filters have been in for over a year and still look great and are operating on less than 3" pressure drop. Also, the Farr people have been a pleasure to do business with.

— Dan Schuler, Schuler Manufacturing

Gold Series® Features

- Modular design for optimum flexibility—have it your way fast!
- Each module accommodates airflows up to 5,000 cfm
- Module constructed of 7 gauge carbon steel
- Door, hopper, inlet and panels are all 10 gauge steel
- Powder painted for unsurpassed corrosion resistance
- Component configurations are virtually unlimited
- Vertical design of cartridges enables efficient pulse cleaning of dust

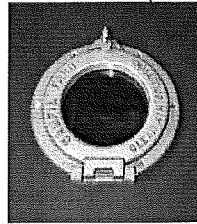
It looks like a safe because it's built like a safe.



High Entry Inlet
Cross flow is created through the inlet, eliminating the need for the restrictive associated with traditional hopper inlets.



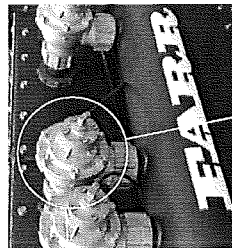
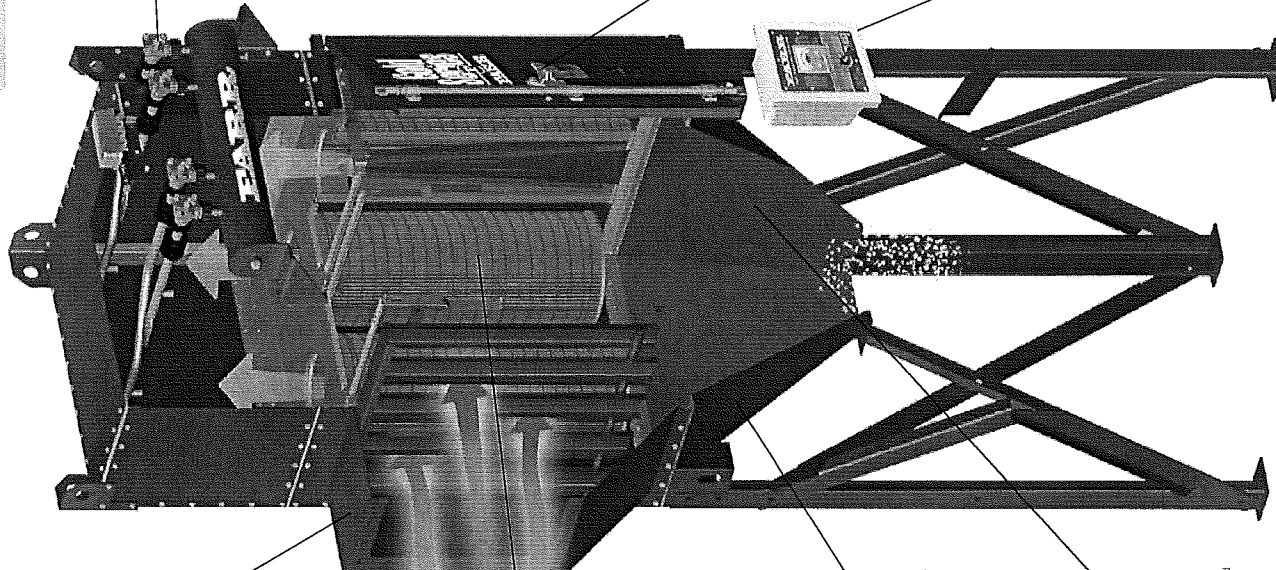
Easy Change-out
Gold Cone™ Cartridge with patented cambar action that positively seals the cartridges without using threads or knots.



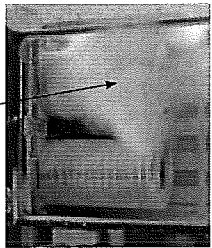
Optional Quick Open View Port in Hopper



Individually Powder Coated
Gold Series components are individually powder coated prior to assembly for superior corrosion resistance.



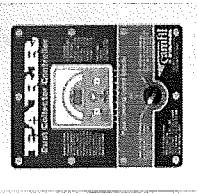
Powerful Cleaning System
To Provide Long Filter Life



Pulse Discharge of Gold Cone™ Filter



Easy Access Door
• Heavy 10 gauge construction
• No knots to lose or drop
• No threads to bind
• Mechanically Attached Seal



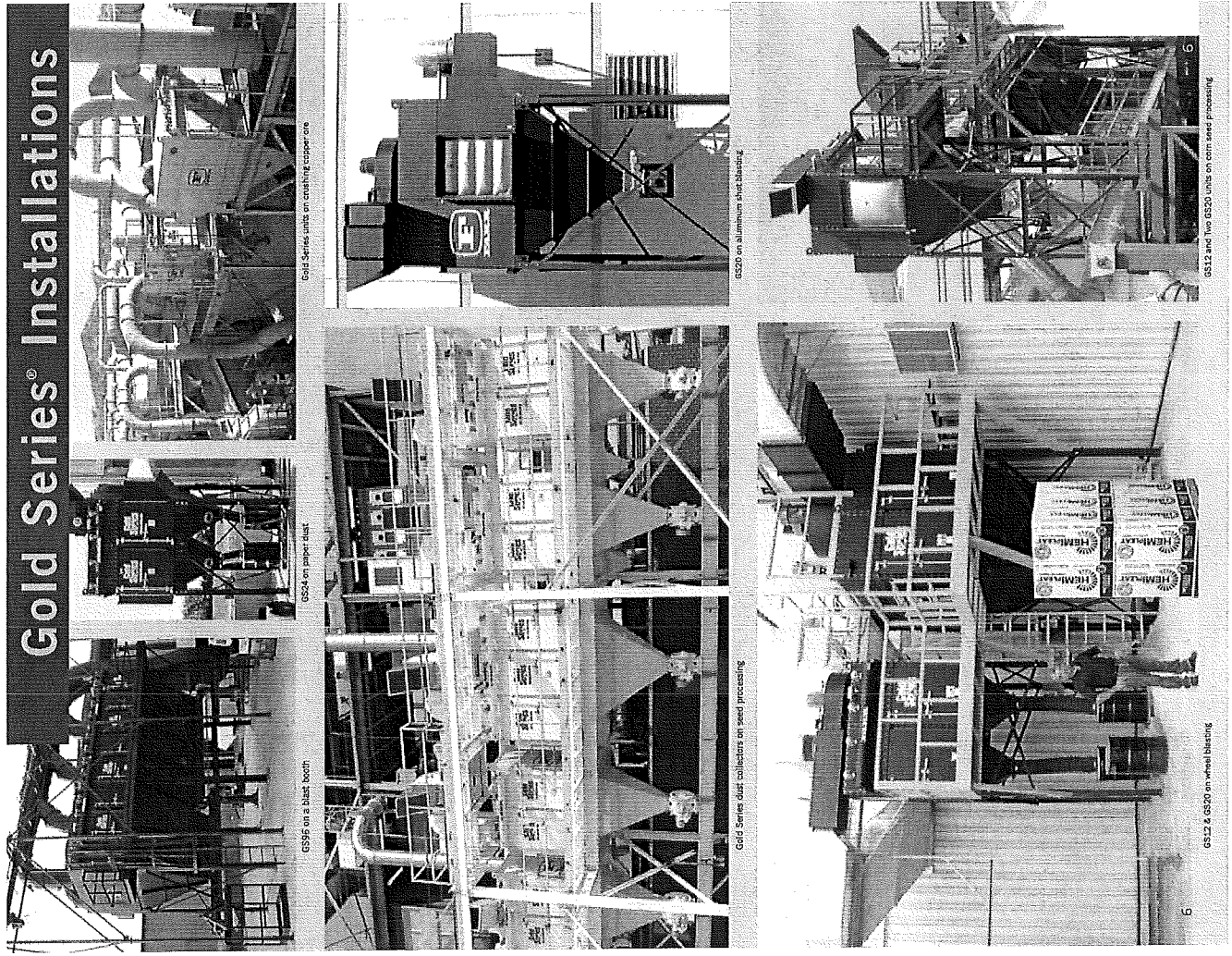
FDC Controller

Gold Series® Options:

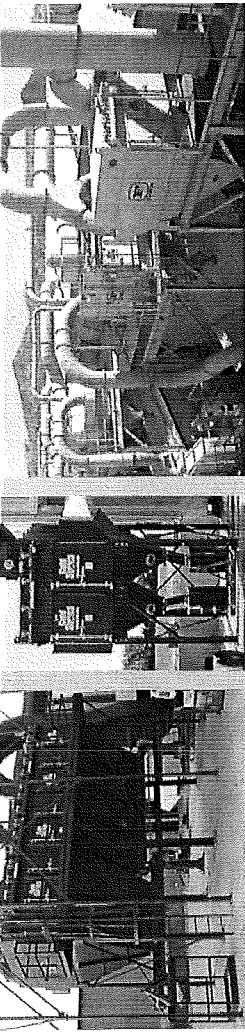
- Explosion Venting
- Rotary Airlock
- Drum Cover Kit
- Quick Open Access Panel in Clean Air Chamber
- Custom Colors
- NEMA 7/9 Solenoid Enclosure
- Increase Leg Length
- Hopper Access Door
- Sprinkler Coupling
- Dust Level Indicator
- Dust Bin w/Drawers
- Common Trough Hopper
- Large Pyramid Hopper
- Stainless Steel Construction
- Various Inlet Designs
- Low Boy Design
- Drop Out Module
- Inlet Duct Back Flap Damper
- Solenoid Heaters
- Just about anything you can think of

Automatic Filter Cleaning

The Farr Dust Collector (FDC) Controller's flexible design allows it to be adapted to many dust collector configurations.



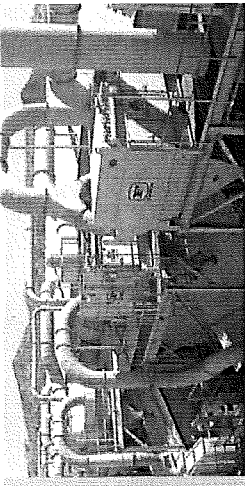
Gold Series® Installations



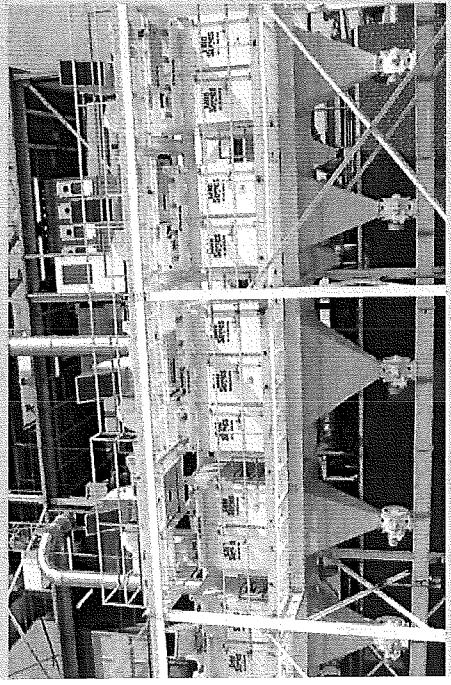
GS96 on a blast booth



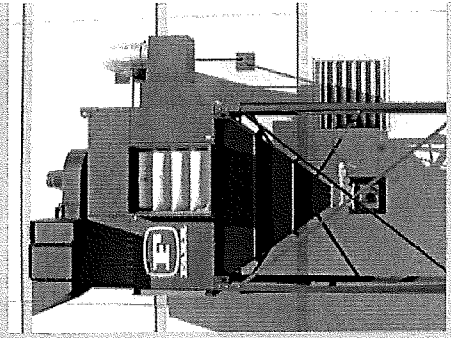
GS24 on paper mill



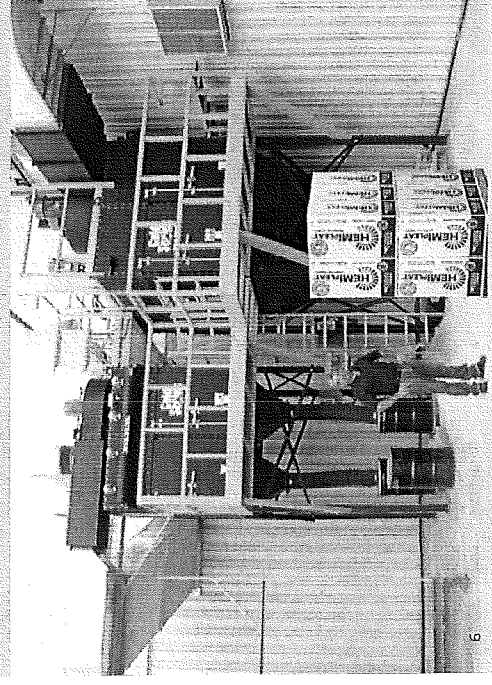
Gold Series unit on crushing crusher ore



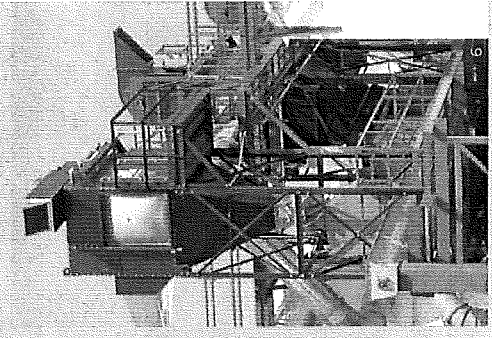
Gold Series dust collector on steel processing



GS20 on limestone feed blaster



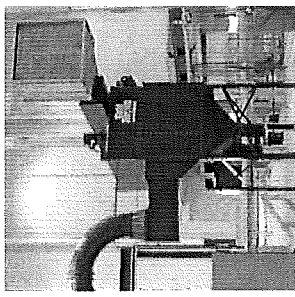
GS22 & GS20 on wheel blasting



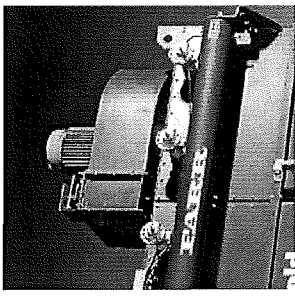
GS12 and two GS20 units on corn seed processing

Gold Series® Options

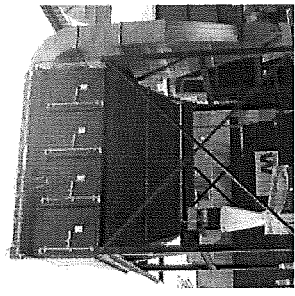
The dust collector individually customized for your special needs.



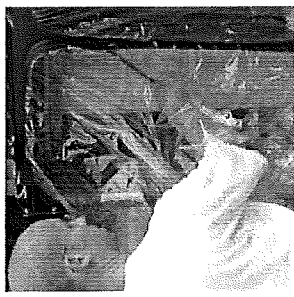
Abrasive Resistant Inlet, Top Mount Fan, Silencer, & Safety Monitoring Filter



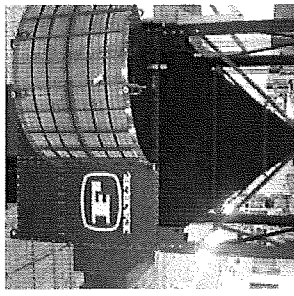
Top Mount Fan with premium efficiency motor.



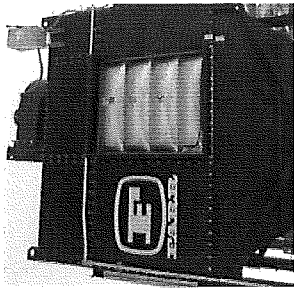
Trough Hopper with Screw Conveyor



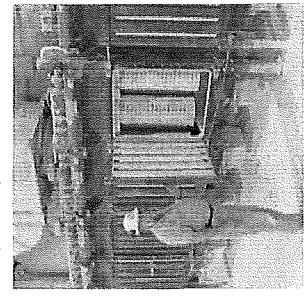
Hazardous compounds contained with BIBO filter change. Filters are sealed via cam-lock action, making it easy to work through the bag.



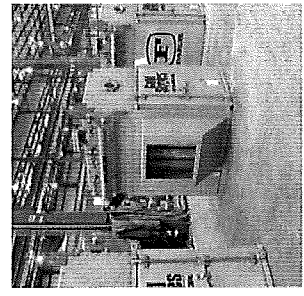
NFPA compliant flameless indoor explosion venting



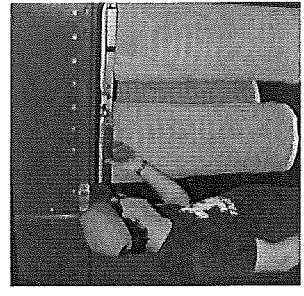
Explosion Vent-ATEX Approved Rupture Panel



Lowered door inlet for cross-flow applications

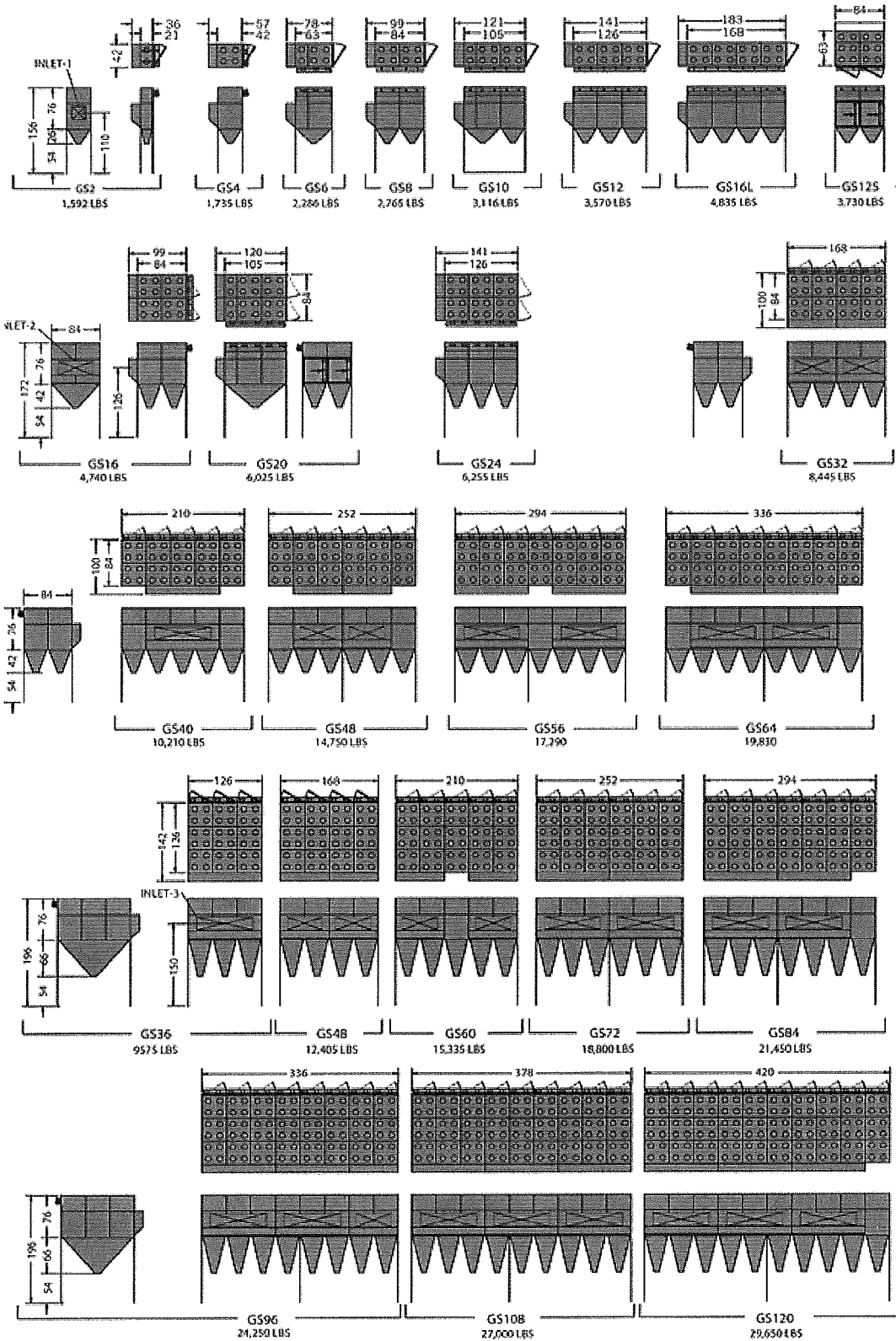


Stainless Steel Construction Available



Overbag Option for Fibrous Dusts like Paper & Fiberglass

Gold Series Hoppers



Large single point discharge hoppers available. Trough hoppers also available. Hoppers shown result in lowest possible headheight.

040110

800-479-6801

www.farrapc.com

870-933-8048 Jonesboro, AR

e-mail: filterman@farrapc.com

Visit www.camfilfarrapc.com for offices out of North America.

Model # Code

GS 24

of cartridges

Gold Series

camfil
FARR
AIR POLLUTION CONTROL

ATTACHMENT G
PSD Netting Analysis

ATTACHMENT G

PSD Analysis

Asarco is upgrading the Mission Complex South Mill by addition of wet grinding equipment. Based upon information contained in the NSPS Background Information Document, AP-42, and Asarco's general knowledge of the process, this equipment is not expected to have more than negligible emissions. Installation of the equipment will have the potential to increase ore throughput through the South Crusher and the SAG Mill Reclaim Circuit and Omnicone Crusher Circuits, which are not wet grinding circuits and which do emit particulate matter.

PSD analysis is governed by 40 C.F.R. § 52.21 because PDEQ operates a delegated program. Section 52.21(a)(2)(iv)(d) provides that for projects that only involve construction of new emissions units, a "significant emissions increase" is determined "if the sum of the difference between the potential to emit (as defined in paragraph (b)(4) of this section) from each new emissions unit following completion of the project and the baseline actual emissions (as defined in paragraph (b)(48)(iii) of this section) of these units before the project equals or exceeds the significant amount for that pollutant (as defined in paragraph (b)(23) of this section)." There is no doubt that the new emissions equipment has an emissions increase that is either zero or negligible, even with a "baseline actual emission" rate of zero.

Asarco suspects that, notwithstanding the clear language of 40 C.F.R. § 52.21(a)(2)(iv), the test that EPA and PDEQ will apply is whether, considering both the impact from the new equipment and any increased utilization of existing equipment, the project does not show a significant emissions increase and that there is no significant net increase in emissions of particulate from the source as a whole. In order to assess this issue, Asarco has taken the following steps:

1. It has calculated the emissions increase from the new equipment (zero).
2. It has calculated the emissions increase from raising the utilization rate of existing equipment that will be affected by the change from the actual emissions rate in 2009 and 2010 to the post-change potential emission rate (not the projected emission rate). This is the most conservative approach and is allowed under 40 C.F.R. § 52.21(b)(41)(ii)(d).

Section 52.21(a)(2)(iv)(f) then prescribes that PSD is triggered if the "sum of the emissions increases" from each emissions unit exceeds the PSD significant amount (in this case, for PM or its indicators) and if there is a "significant net emissions increase" for that pollutant.

Asarco has completed an aggregate emissions calculation (see spreadsheet). This calculation shows that only considering the project, Asarco will show a “net” emissions gain as follows:

PM:	-4.79 tons/yr
PM ₁₀ :	-2.45 tons/yr
PM _{2.5} :	-2.09 tons/yr

The reductions result from a combination of throughput limitations and additional controls Asarco has installed on units that are affected, but not modified, by the proposed South Mill expansion.

Even assuming that Asarco must include all “source wide contemporaneous emissions increases and decreases,” *see* 40 C.F.R. §§ 52.21(a)(2)(iv)(b), (b)(3) & (b)(48), because Asarco’s “source wide contemporaneous emissions increases” are less than 25 tons/yr of PM, 15 tons/yr of PM₁₀, and 10 tons/yr of PM_{2.5}, Asarco will still “net out” of PSD review under the second step of the process.

The following projects have occurred in the “contemporaneous period”:

- M309-E2/E6 conveyor change added 7.10 tons/yr PM (March 2011)
- Air pollution control equipment upgrades (late 2010-April 2011)
 - Wet scrubber 307-108 converted from Ducon to Beu-Math unit
 - Dust collector 305-07a converted from American Air Filter to Beu-Math
 - Backup dust collector 305-07b installed in case 305-07a goes down

Asarco does not regard the air pollution control equipment work in 2010-2011, which replaced existing air pollution control equipment with like kind, substantially like kind or added backup equipment, as triggering the “actual to potential” test or the “actual to projected actual test” because no change in actual emissions are anticipated as a result of these projects. None of these projects changed the underlying process equipment and all had equivalent, or improved, emission control rates. The only other project that Asarco conducted, the M309-E2/E6 conveyor change, at most would increase emissions of PM by 7.10 tons/yr. Emissions of PM₁₀ and PM_{2.5} were carried at the same level, but are likely significantly less. Because 7.1 added to any of the emissions decreases above would be less than a PSD significant level, PSD review is not triggered.

ATTACHMENT H

Stack Testing Data for Wet Scrubbers

ATTACHMENT H
Stack Testing Data for Wet Scrubbers

Asarco is submitting the attached testing data for its existing wet scrubbers to demonstrate, based upon Asarco's experience with this equipment at the Mission Complex, it can consistently achieve a control level of 0.01 gr/scf. As PDEQ is aware, Asarco recently has completed or is in the process of refurbishing much of its air pollution control equipment. The enclosed test data was obtained prior to refurbishment. Asarco believes that the refurbished equipment should achieve levels of 0.01 gr/scf or less.

**Summary of ASARCO LLC. - Sahuarita
DUCON Wet Scrubber 20-270
Sahuarita, Arizona
08/14/08**

		Particulate Emissions		Gas Stream Characteristics						
Run #	Time	gr/dscf	PPH	AWCFM	ADCFM	DSCFH	Ts(°F)	%H ₂ O v/v	%CO ₂ v/v D	%O ₂ v/v D
1-PT	08:36-10:43	0.0045	0.640			994,852.5	76	3.42	0.0	20.8
2-PT	11:00-13:06	0.0081	0.988			854,172.1	79	3.67	0.0	20.8
3-PT	13:26-15:30	<u>0.0064</u>	<u>0.744</u>			<u>813,238.0</u>	<u>79</u>	<u>2.95</u>	<u>0.0</u>	<u>20.8</u>
Mean 1-3		0.0063	0.791			887,420.9	78	3.35	0.0	20.8

Run #	Time	Opacity % Attenuation
1	08:39-10:36	0.9
2	11:00-13:00	5.9
3	13:26-15:26	<u>5.8</u>
Mean 1-3		4.2

Summary of ASARCO LLC. - Sahuarita
DUCON 42 Wet Scrubber 10-114
Sahuarita, Arizona
07/18/08

		Particulate Emissions		Gas Stream Characteristics					
Run #	Time	gr/dscf	PPH	AWCFM	ADCFM	DSCFH	Ts(°F)	%H ₂ O v/v	%CO ₂ v/v D
7-PT	08:39-10:44	0.0016	0.056	4,944.9	4,758.0	246,780.1	83	3.78	20.8
8-PT	11:10-13:15	0.0009	0.031	4,852.5	4,683.6	242,833.7	83	3.48	20.8
9-PT	13:40-15:45	<u>0.0011</u>	<u>0.038</u>	<u>4,837.4</u>	<u>4,659.9</u>	<u>240,895.3</u>	<u>84</u>	<u>3.67</u>	<u>20.8</u>
Mean 7-9		0.0012	0.042	4,878.3	4,700.5	243,503.0	83	3.64	20.8

Run #	Time	% Attenuation	Opacity
7-PT	08:39-10:39	2.5	
8-PT	11:10-13:11	2.8	
9-PT	13:40-15:45	<u>1.9</u>	
Mean 7-9		2.4	

Summary of ASARCO LLC. - Sahuarita
 DUCON 72 Wet Scrubber 30-150
 Sahuarita, Arizona
 07/16/08

		Particulate Emissions		Gas Stream Characteristics					
Run #	Time	gr/dscf	PPH	AWCFM	ADCFM	DSCFH	Ts(°F)	%H ₂ O v/v	%CO ₂ v/v D
1-PT	10:55-13:04	0.0024	0.196			570,222.8	85	7.08	0.0
2-PT	13:28-15:46	0.0025	0.216			603,938.6	84	3.63	0.0
3-PT	16:08-18:20	0.0017	0.140			577,600.1	83	9.30	0.0
Mean 1-3		0.0022	0.184			583,920.5	84	6.67	0.0

Run #	Time	Opacity % Attenuation
1	10:55-13:04	2.4
2	16:08-18:20	3.3
3	13:28-15:46	3.5
Mean 1-3		3.1